

INFORMATION SERVICES INDUSTRY

1981 ANNUAL PRESENTATION

INPUT



# ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients'

needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international consulting firm. Clients include over 100 of the world's largest and most technically advanced companies.

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**INFORMATION SERVICES INDUSTRY  
PROGRAM**

**ANNUAL CLIENT PRESENTATION  
1981**

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INFORMATION SERVICES MCP  
INDUSTRY PROGRAM 1981  
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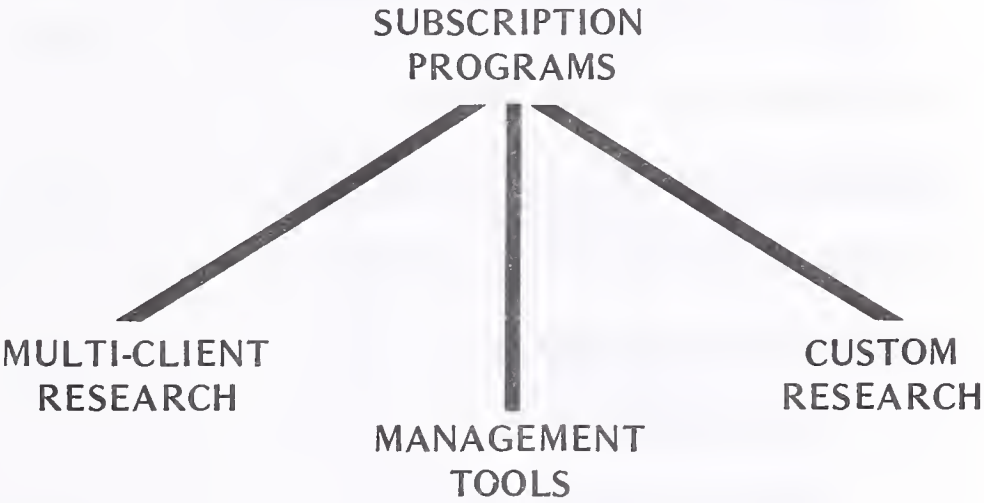
## I. INTRODUCTION

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# INPUT SERVICES



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## **1981 ACHIEVEMENTS**

- REVENUE INCREASE OF 40%
- IMPROVED PROFIT PERFORMANCE
- STREAMLINED ORGANIZATION
- STRENGTHENED STAFF
  - MANAGEMENT
  - PROFESSIONAL
- IMPROVED PRODUCT DELIVERY PERFORMANCE
- FIRST ACQUISITION

INPUT

## PROGRAMS

| <u>YEAR</u> | <u>NUMBER OF<br/>CLIENTS</u> |                                    |
|-------------|------------------------------|------------------------------------|
| 1976        | 36                           | INFORMATION SERVICES<br>INDUSTRY   |
| 1976        | 40                           | COMPANY ANALYSIS AND<br>MONITORING |
| 1978        | 60                           | INFORMATION SYSTEMS<br>PLANNING    |
| 1980        | 40                           | FIELD SERVICE-<br>U.S./EUROPE      |
| 1981        | 4                            | ON-TARGET MARKETING                |

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## **INFORMATION SYSTEMS PROGRAM**

- PLANNING FOR COMPUTER/COMMUNICATIONS BUYERS
- VENDOR WATCH REPORTS
- RESIDUAL VALUES
- MANAGEMENT ISSUES
- TECHNOLOGY IMPACTS
- EXTENSIONS
  - OFFICE COMMUNICATIONS
  - SOFTWARE DEVELOPMENT

INPUT

## **FIELD SERVICE PROGRAM**

- SOFTWARE AND HARDWARE MAINTENANCE
- BUSINESS/MANAGEMENT ISSUES
- NEW METHODS AND PROCESSES
- PERSONNEL FACTORS
- CUSTOMER/MARKETING/PRICING
- CUSTOMER CONSIDERATIONS
- EXTENSION - CUSTOMER SATISFACTION SURVEY

INPUT

## **COMPANY ANALYSIS AND MONITORING PROGRAM**

- DESCRIPTIONS/DIRECTORY/INQUIRY SERVICE
- INFORMATION SERVICES COMPANIES:
  - PROCESSING
  - SOFTWARE
  - PROFESSIONAL SERVICES
  - TURNKEY SYSTEMS
- 2500 SUMMARY/400 DETAIL DESCRIPTIONS
- COMPETITIVE/PRODUCT ANALYSIS
- ACQUISITION ACTIVITY

INPUT



## **ON-TARGET MARKETING**

- **MARKETING METHODOLOGY – “HOW TO DO IT.”**
- **PRACTICAL TOOLS FOR:**
  - **MARKET SEGMENTATION**
  - **COMPETITIVE ANALYSIS**
  - **COMPANY “POSITIONING”**
  - **INTELLIGENCE GATHERING**
- **PROCEDURES, GUIDELINES, FORMS, EXAMPLES**
- **WORKSHOPS/CONSULTING**

**INPUT**

## **MULTI-CLIENT STUDIES**

- IMPROVING SOFTWARE DEVELOPMENT PRODUCTIVITY
- INTERNATIONAL ON-LINE DATA BASE SERVICES
- CAD/CAM SYSTEM AND SERVICE APPLICATIONS AND MARKETS
- COMPUTER OUTPUT SERVICES MARKETS
- PERSONAL COMPUTERS IN LARGE ORGANIZATIONS

INPUT

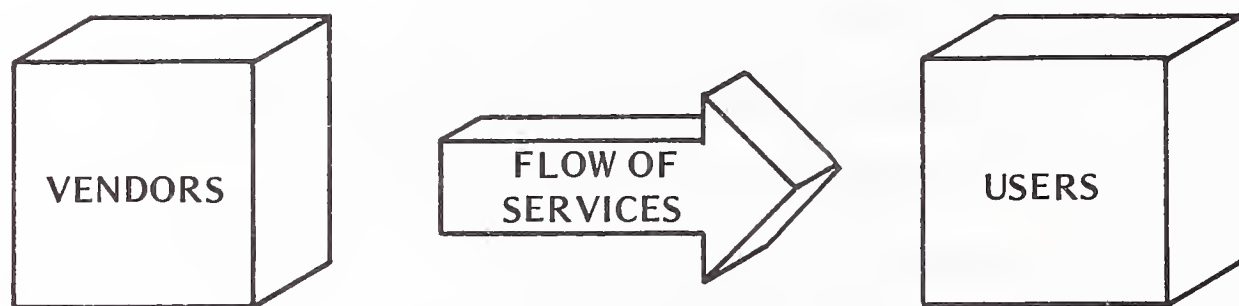
## **RECENT CUSTOM PROJECTS**

- BUSINESS PLAN DEVELOPMENT
- PROFESSIONAL SERVICES BUYING PATTERNS
- RCS COMPANY EXPENSE DISTRIBUTION
- OFFICE COMMUNICATIONS
- DOMESTIC NETWORK SERVICES
- CANADIAN COMPUTER SERVICES MARKET

INPUT



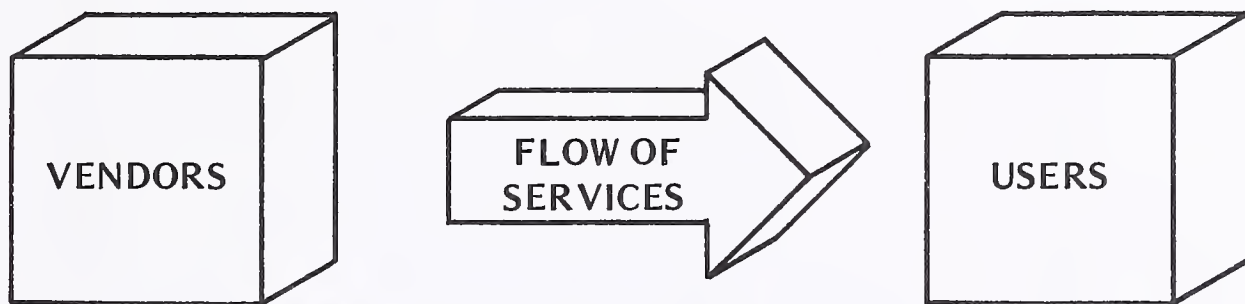
## TRANSITION



- TYPES OF SERVICE
- MODES OF DELIVERY
- NEW COMPETITION

INPUT

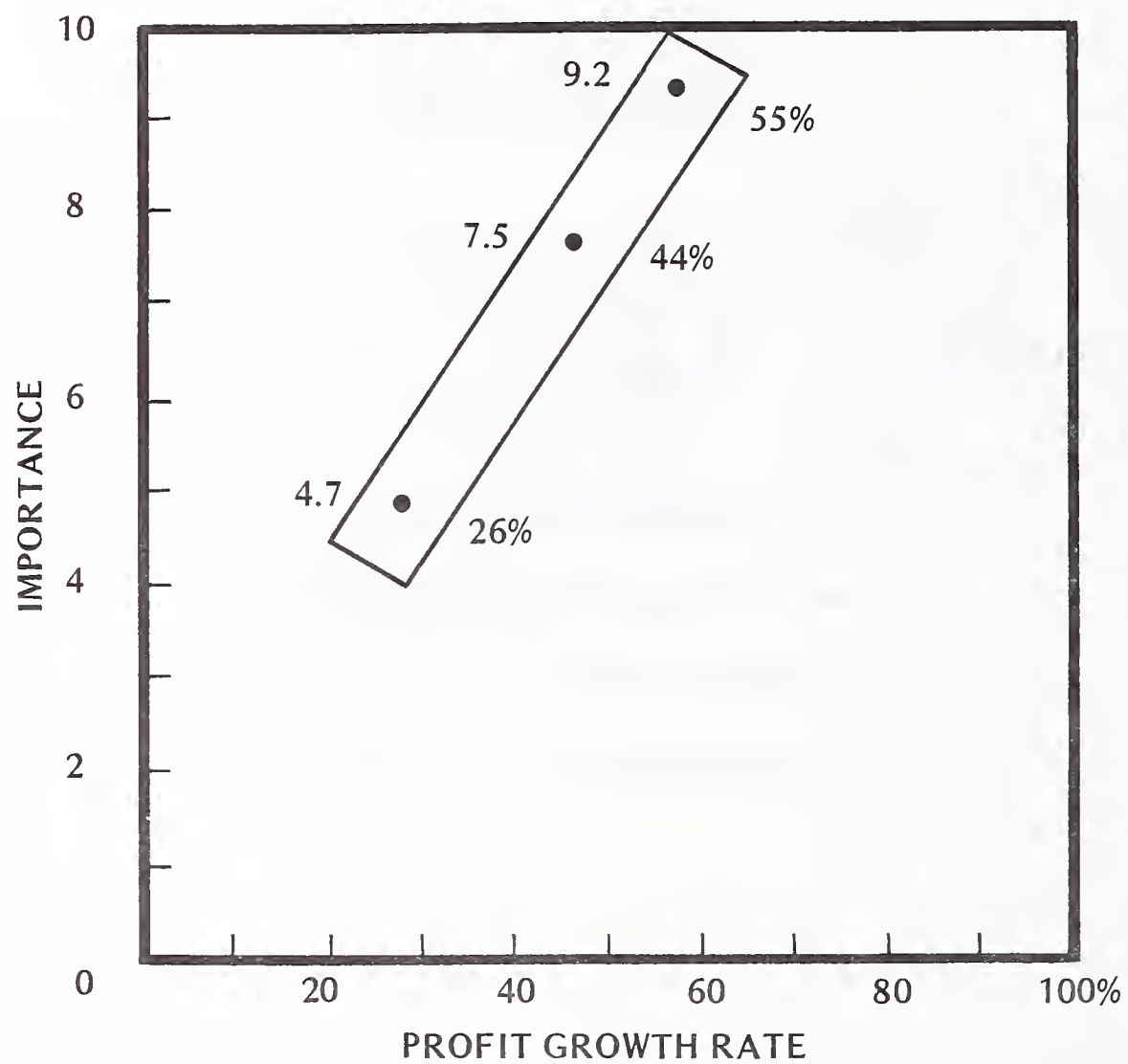
## CHALLENGES



- CHANGING TECHNOLOGY
- VIABLE MARKETING PROGRAMS
- SCARCITY OF RESOURCES
- INCREASING COMPETITION

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## IMPORTANCE OF CORPORATE PLANNING



INPUT



## **II. EXECUTIVE SUMMARY**

INPUT

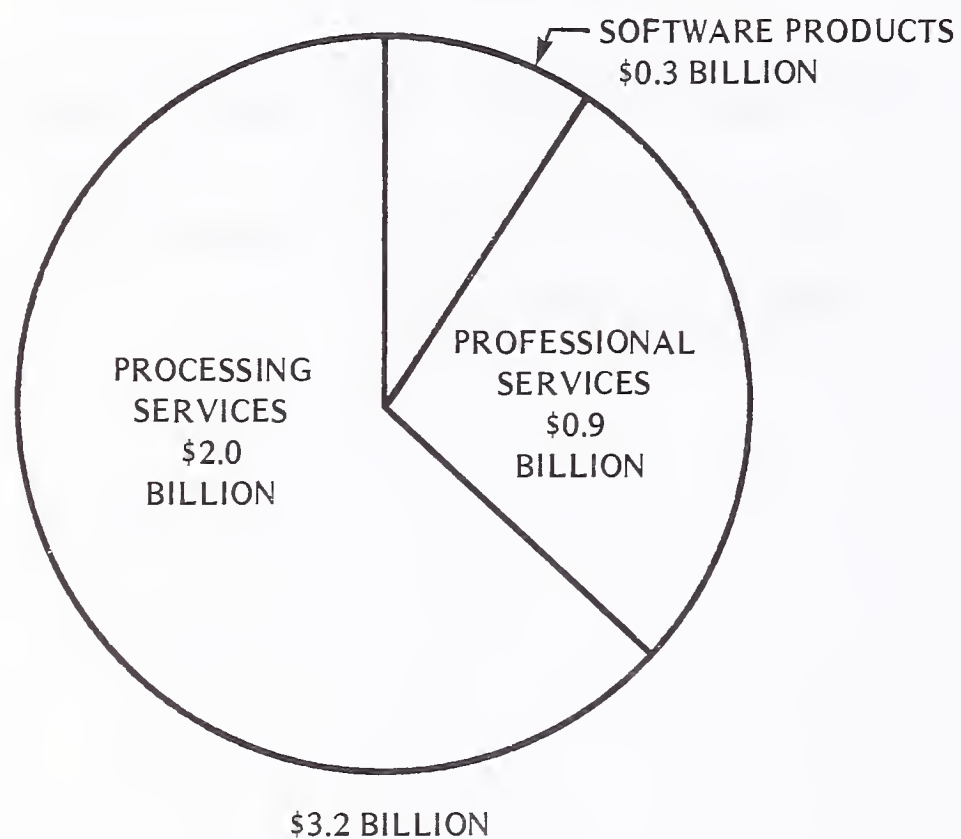


## **INFORMATION SERVICES INDUSTRY**

**- GROWING AND CHANGING  
DRAMATICALLY**

INPUT

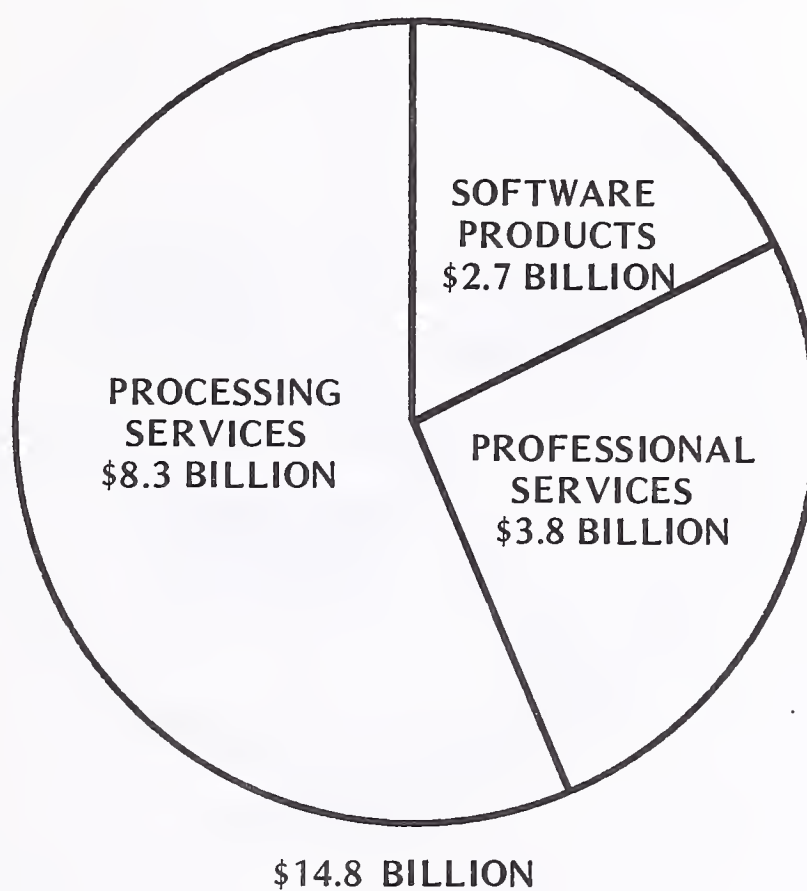
## U.S. COMPUTER SERVICES MARKET - 1970 (CURRENT DOLLARS)



INPUT

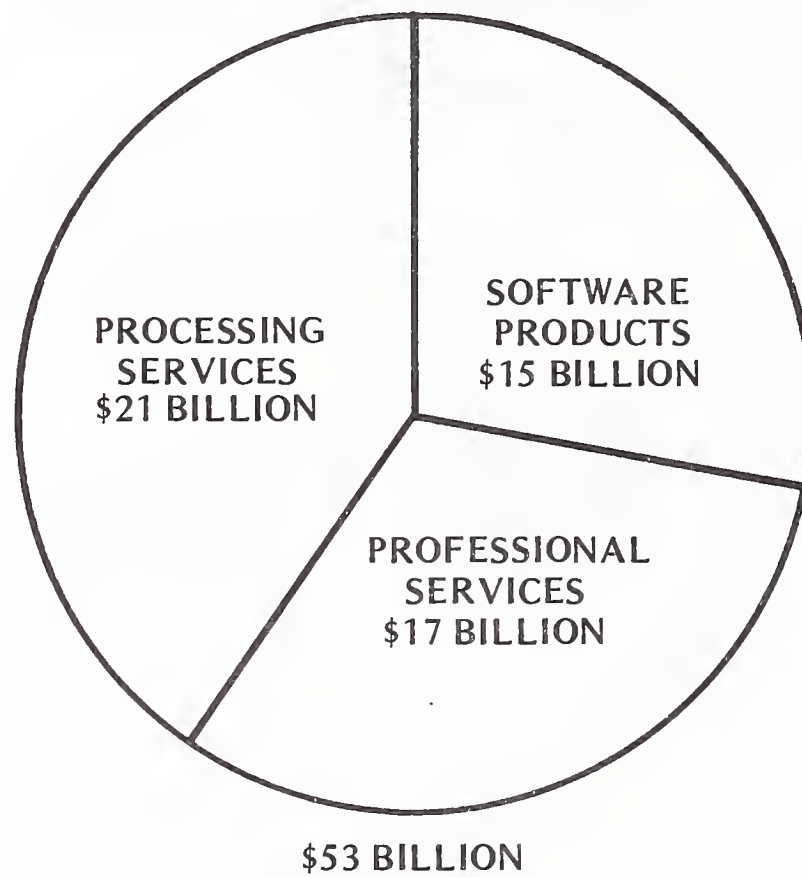


## **U.S. INFORMATION SERVICES MARKET - 1980 (CURRENT DOLLARS)**



INPUT

## **U.S. INFORMATION SERVICES MARKET - 1986 (CURRENT DOLLARS)**



INPUT

## **OPPORTUNITIES**

- BUSINESS GRAPHICS
- USER SITE HARDWARE SERVICES
- ENERGY RELATED MARKETS
- PROFESSIONAL SERVICES
- PERSONAL SYSTEMS

INPUT

## **FURTHER OPPORTUNITIES**

- APPLICATION - SPECIFIC TURNKEY SYSTEMS/  
SERVICES
- NETWORK SERVICES
- SYSTEMS IMPLEMENTATION/FACILITIES MANAGEMENT
- DATA BASES AND ASSOCIATED APPLICATIONS
- SOFTWARE "MANUFACTURING"/"PUBLISHING"

INPUT

## OVERALL ISSUES

- ECONOMY
- CHANGING BUYER ENVIRONMENT
- SOFTWARE DEVELOPMENT
  - APPLICATIONS IMPLEMENTATION PROCESS
- OFFICE/TELECOMMUNICATIONS TARGETS
- CONTINUING HARDWARE CHANGES
- FUTURE LIMITS OF SERVICE

INPUT



## **1982 PROCESSING SERVICES ISSUES**

- SHORTAGE OF PEOPLE
- IN-HOUSE ALTERNATIVES
- RE-INVESTMENT IN SYSTEMS AND NETWORKS
  - HARDWARE
  - SOFTWARE
- MIGRATION TO NEW AREAS
- NEW COMPETITION

INPUT

## **1982 SOFTWARE ISSUES**

- NEW ENTRIES
- "HIT PARADE" SYNDROME
- INTEGRATION OF GRAPHICS
- DISTRIBUTED PROCESSING
- CHANGING SOFTWARE ECONOMICS
- PEOPLE LIMITATIONS
- INTEGRATION OF HARDWARE

INPUT



### **III. STATE OF THE INDUSTRY**

- PERFORMANCE OF LEADING FIRMS
- ACQUISITION ACTIVITY

INPUT





## **PERFORMANCE OF LEADING FIRMS**

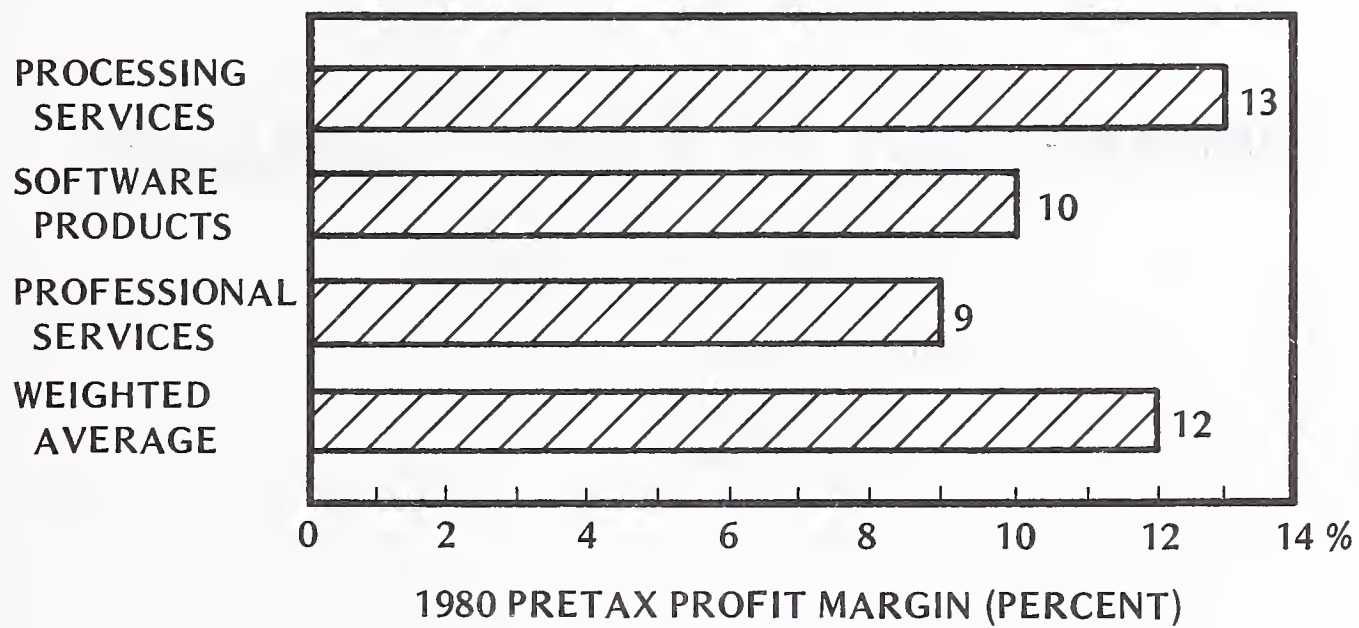
INPUT

## **PERFORMANCE OF PUBLIC COMPANIES**

- **PROFITS**
  - \$376 MILLION
  - 28% GROWTH
- **PROFIT MARGIN**
  - 11.6% 1979
  - 11.6% 1980

INPUT

## 1980 PUBLIC COMPANY PERFORMANCE



INPUT

## **PERFORMANCE OF PUBLIC COMPANIES**

- 56 COMPANIES ANALYZED
- REVENUES
  - \$3.2 BILLION
  - 27% GROWTH

INPUT

## **PUBLIC COMPANY PBT - FISCAL 1980**

|         |     |
|---------|-----|
| QUOTRON | 25% |
| SMS     | 25  |
| ADP     | 17  |
| MDSI    | 17  |

INPUT

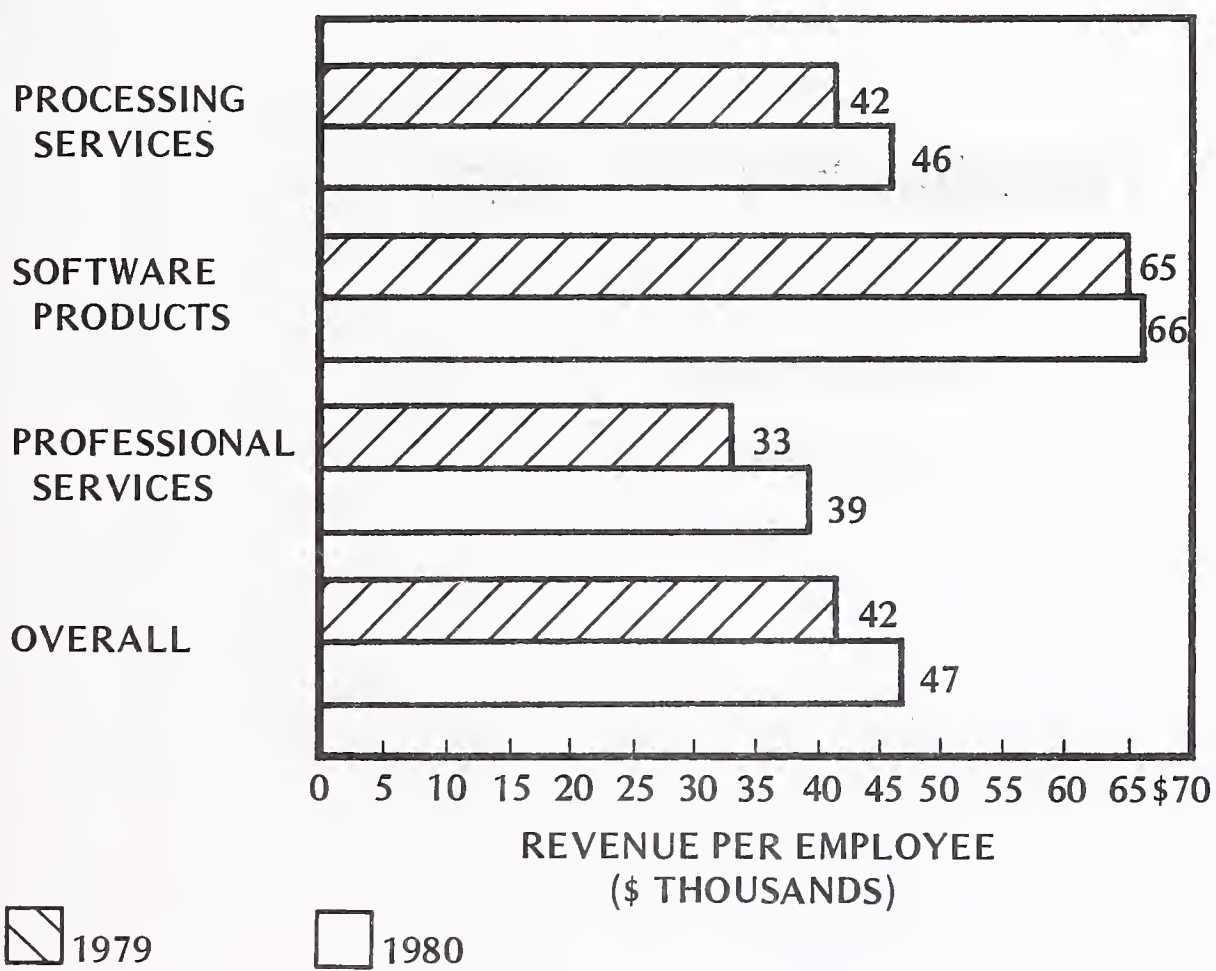


## **PUBLIC COMPANY PBT - FISCAL 1980**

|               |     |
|---------------|-----|
| NATIONAL DATA | 15% |
| TYMSHARE      | 15  |
| ANACOMP       | 12  |
| EDS           | 12  |
| CSC           | 10  |

INPUT

## PRODUCTIVITY 1979, 1980



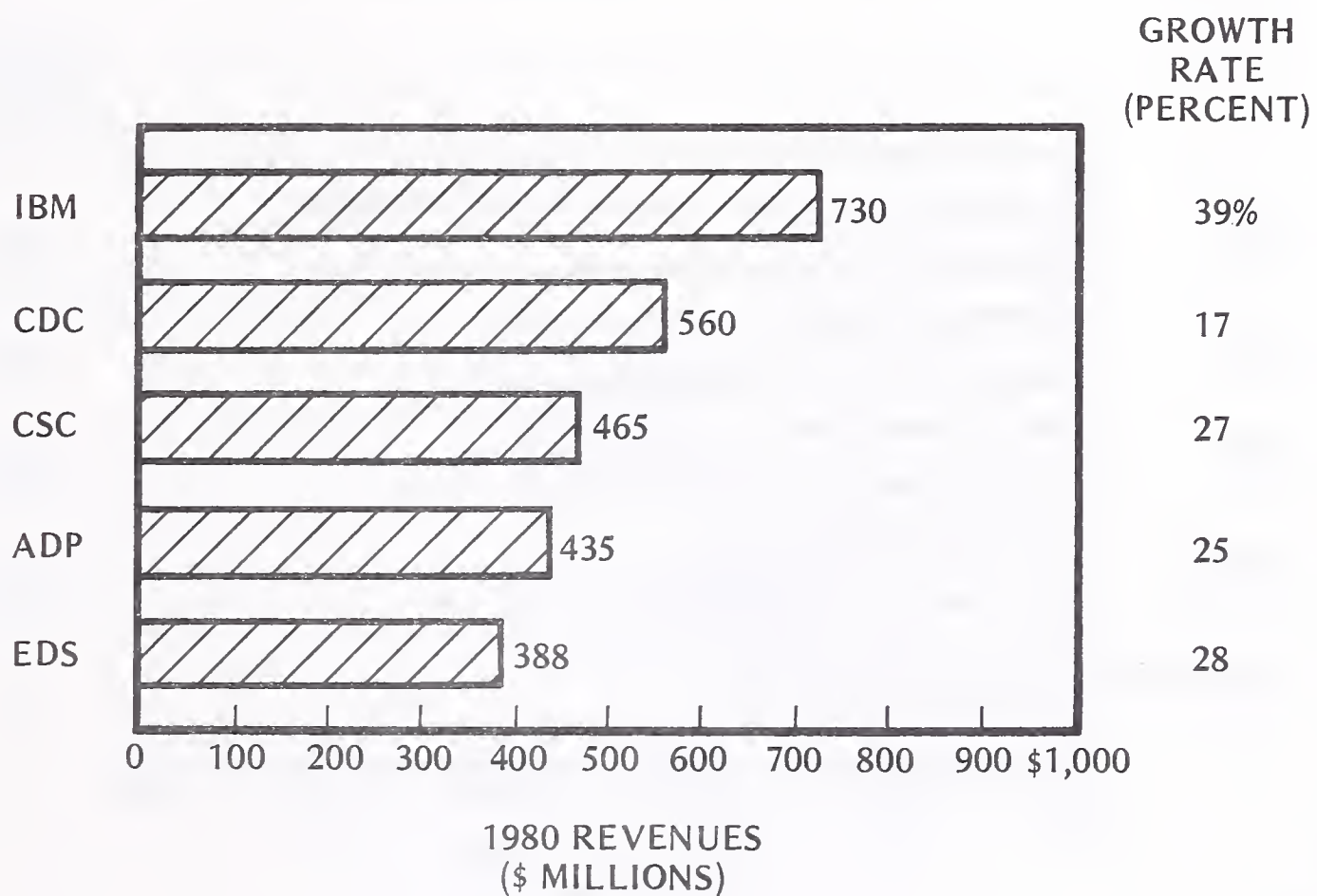
INPUT

## **VENDOR PERFORMANCE**

- U.S. REVENUES
- NON-CAPTIVE
- CALENDAR 1980

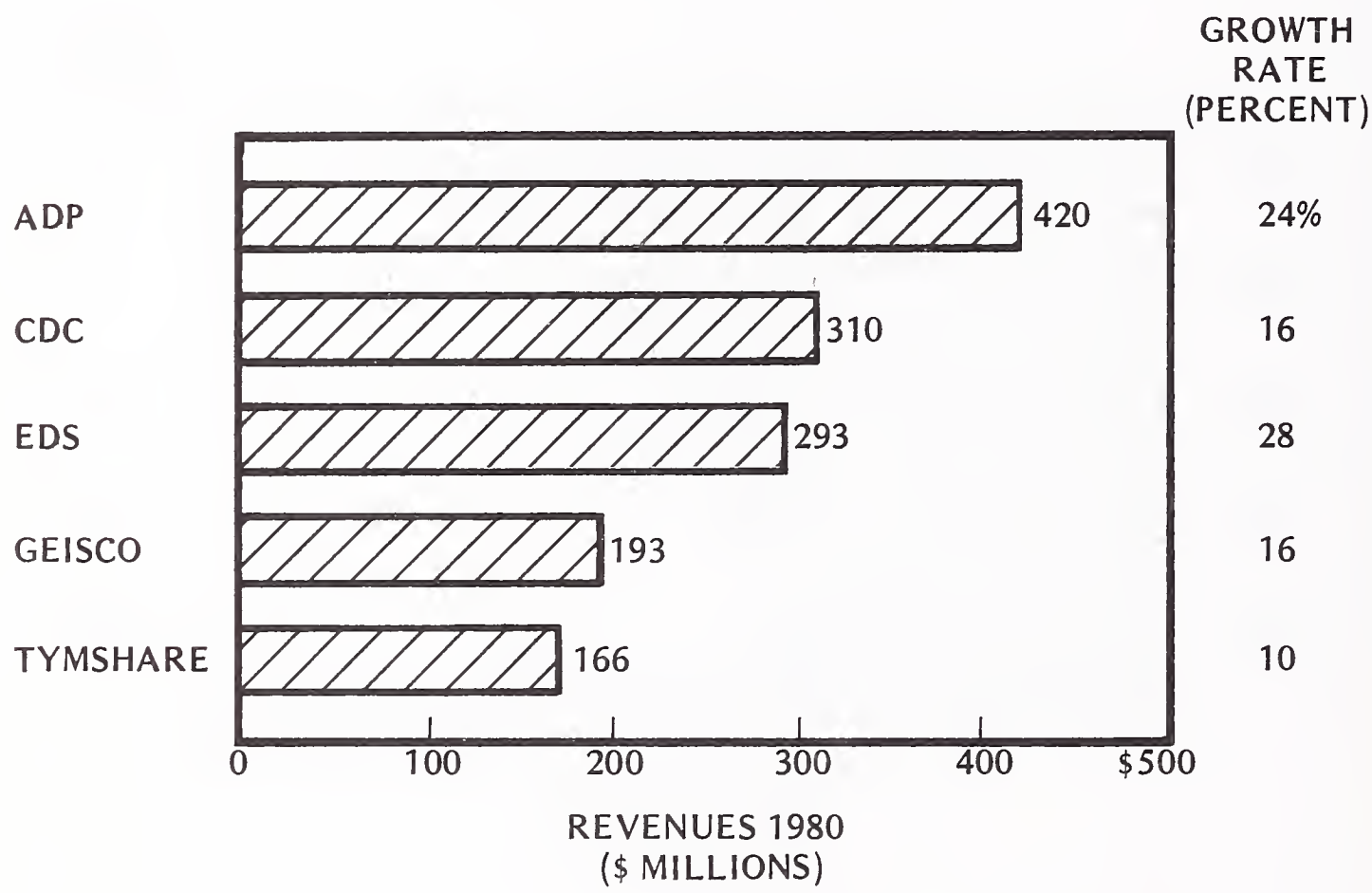
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## LARGEST INFORMATION SERVICES VENDORS



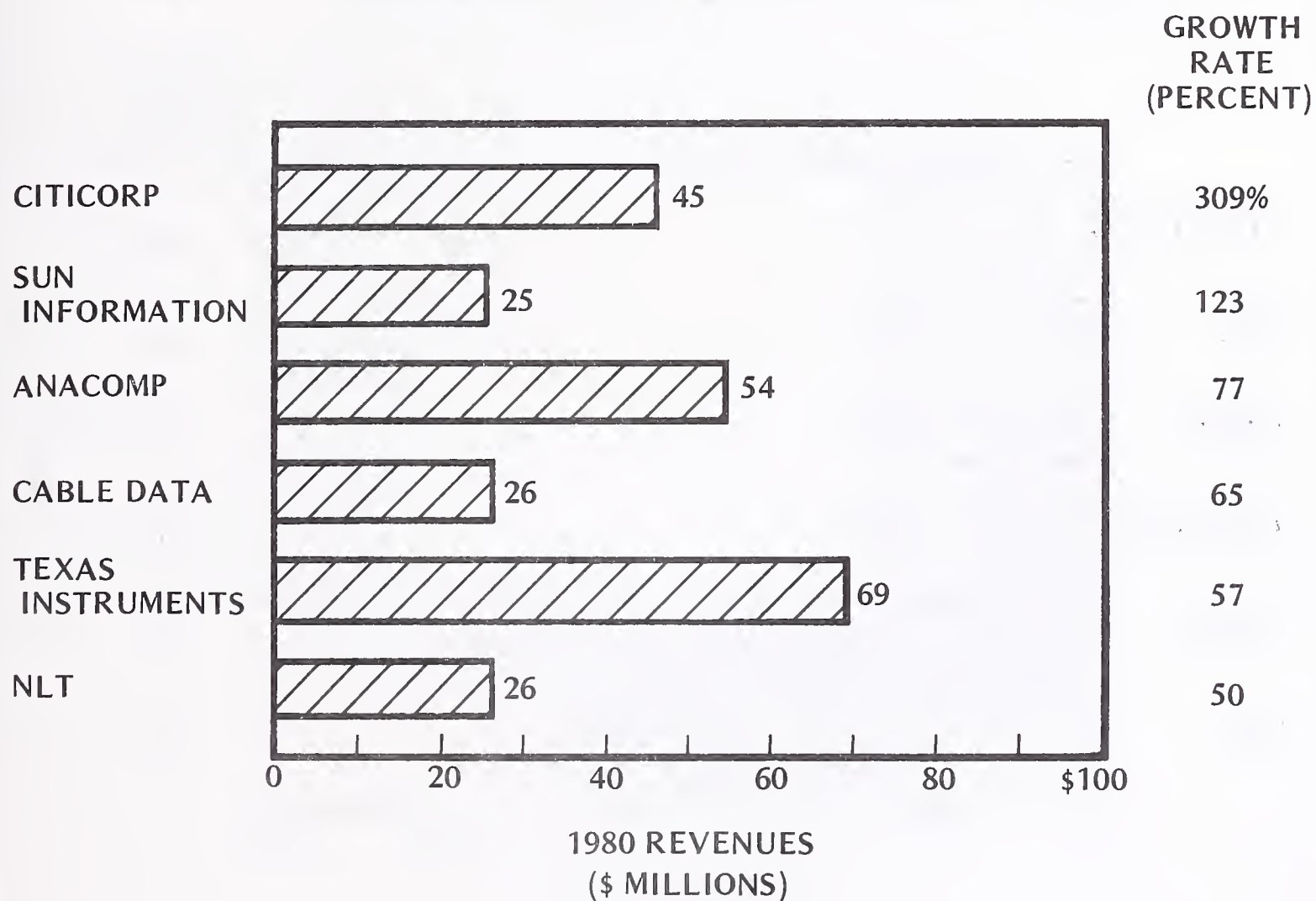
INPUT

# LARGEST PROCESSING SERVICES VENDORS



INPUT

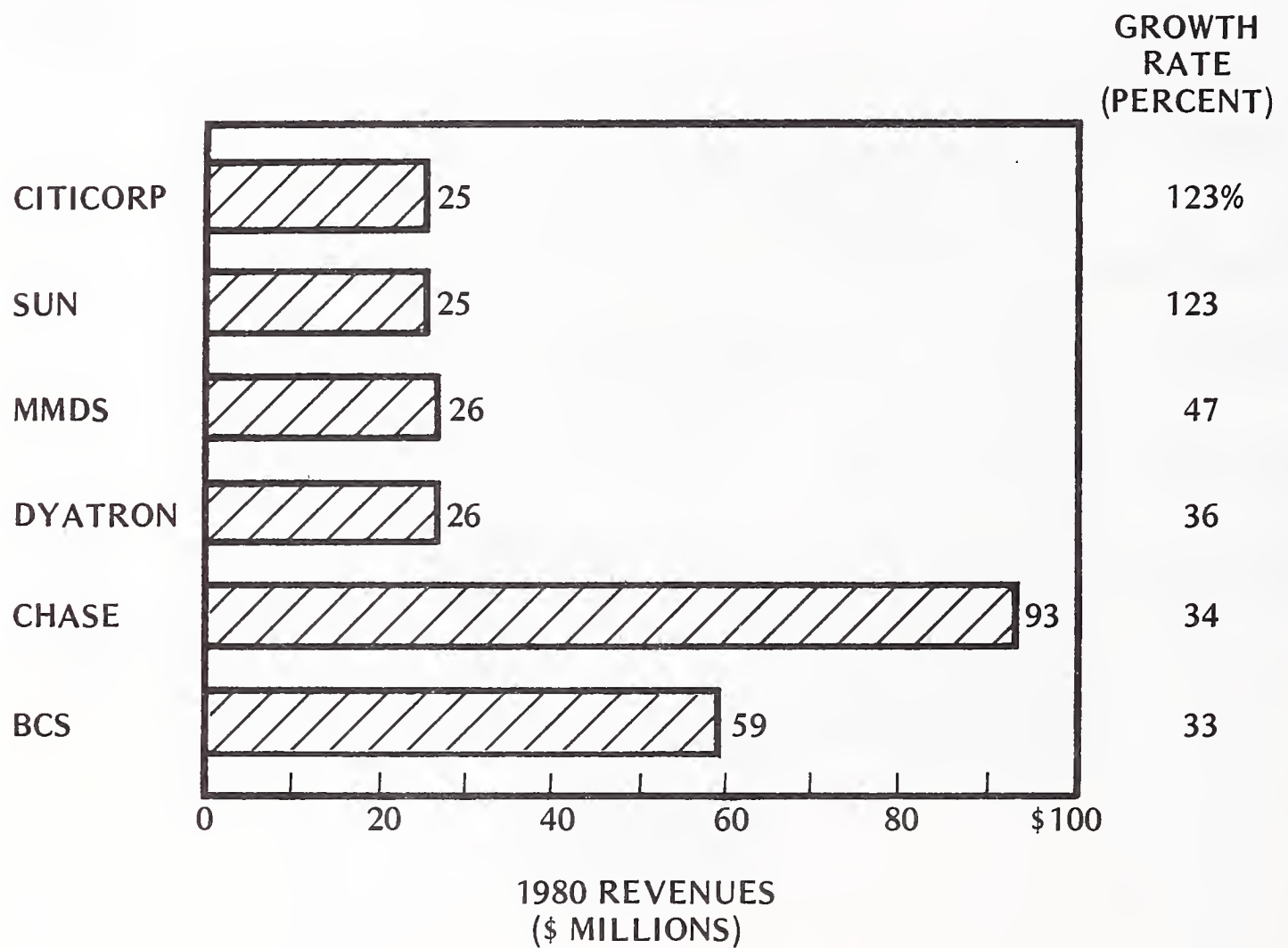
## FASTEST GROWING VENDORS - PROCESSING SERVICES OVER \$25 MILLION



INPUT

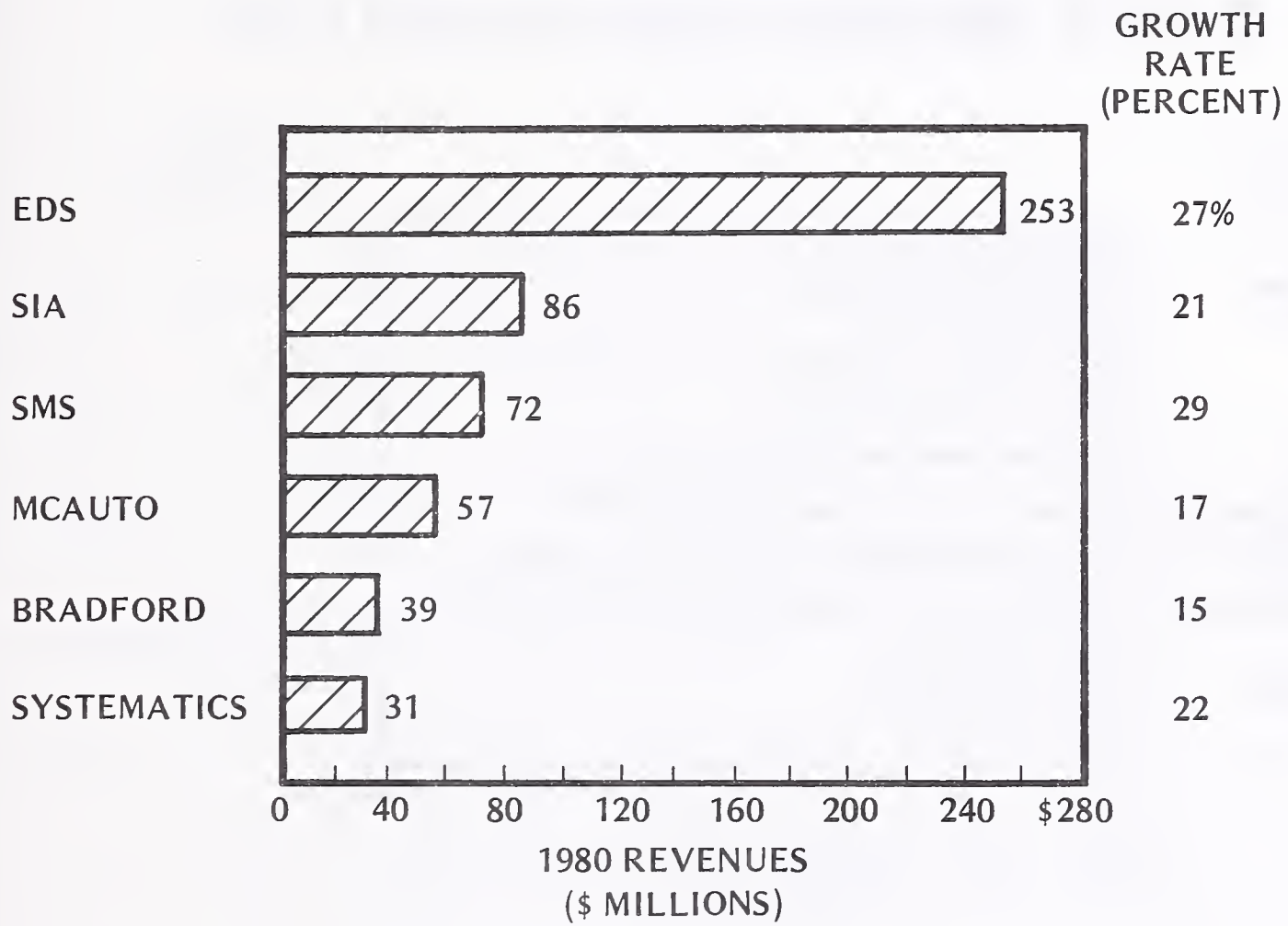


## FASTEST GROWING COMPANIES - RCS OVER \$25 MILLION



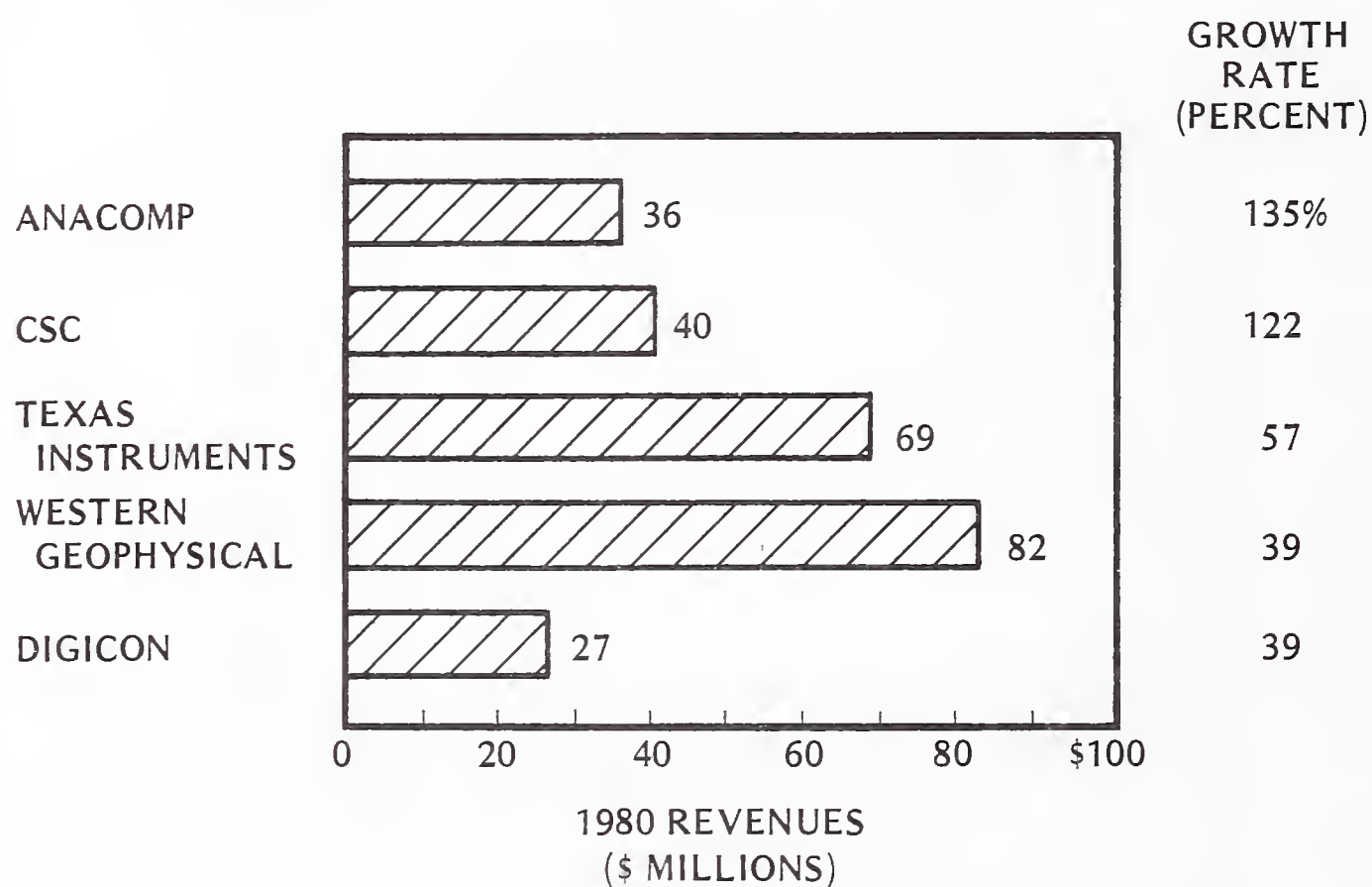
INPUT

## LARGEST FM VENDORS



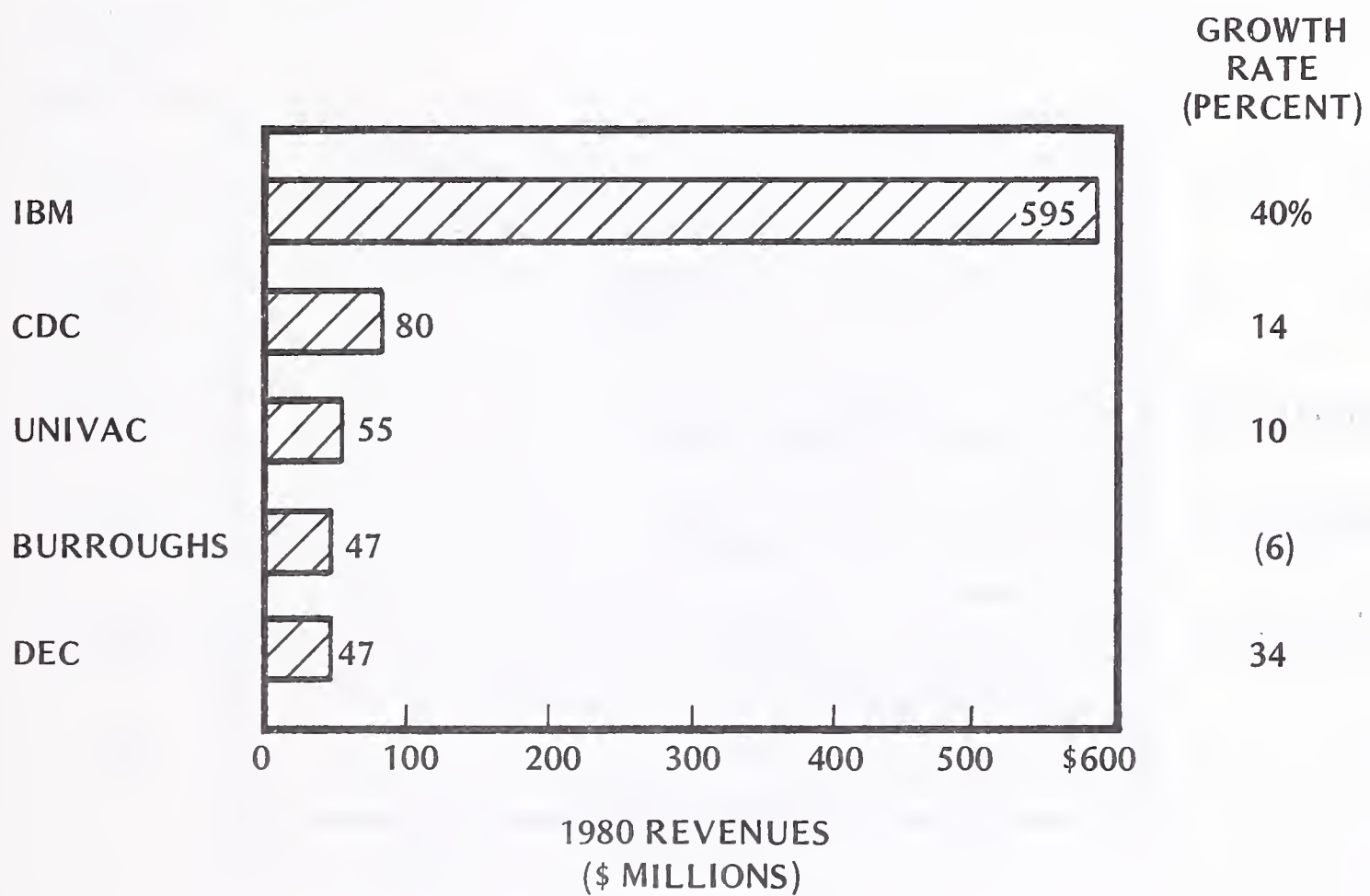
INPUT

## FASTEST GROWING COMPANIES - BATCH SERVICES OVER \$25 MILLION



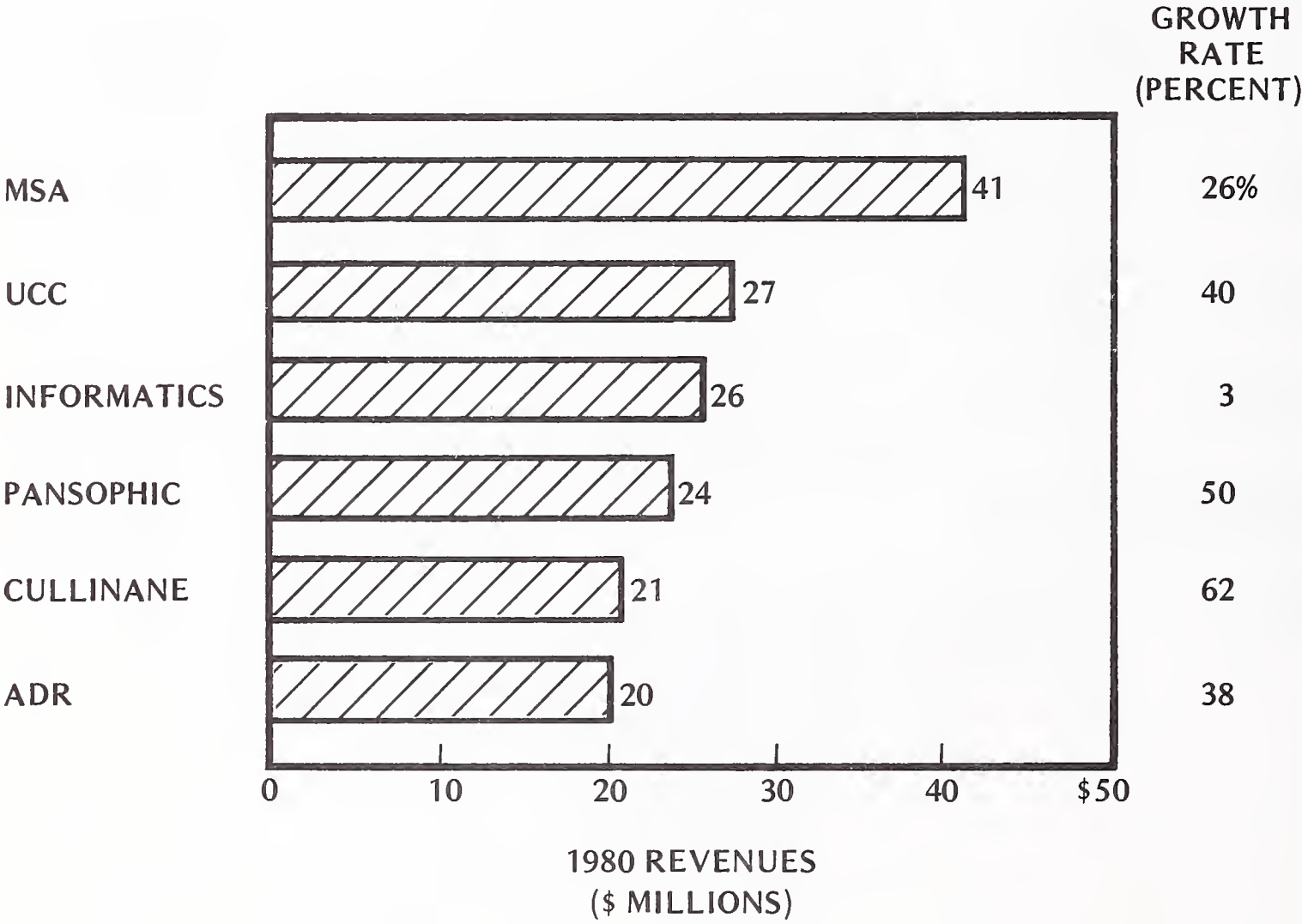
INPUT

## LARGEST SOFTWARE PRODUCTS VENDORS



INPUT

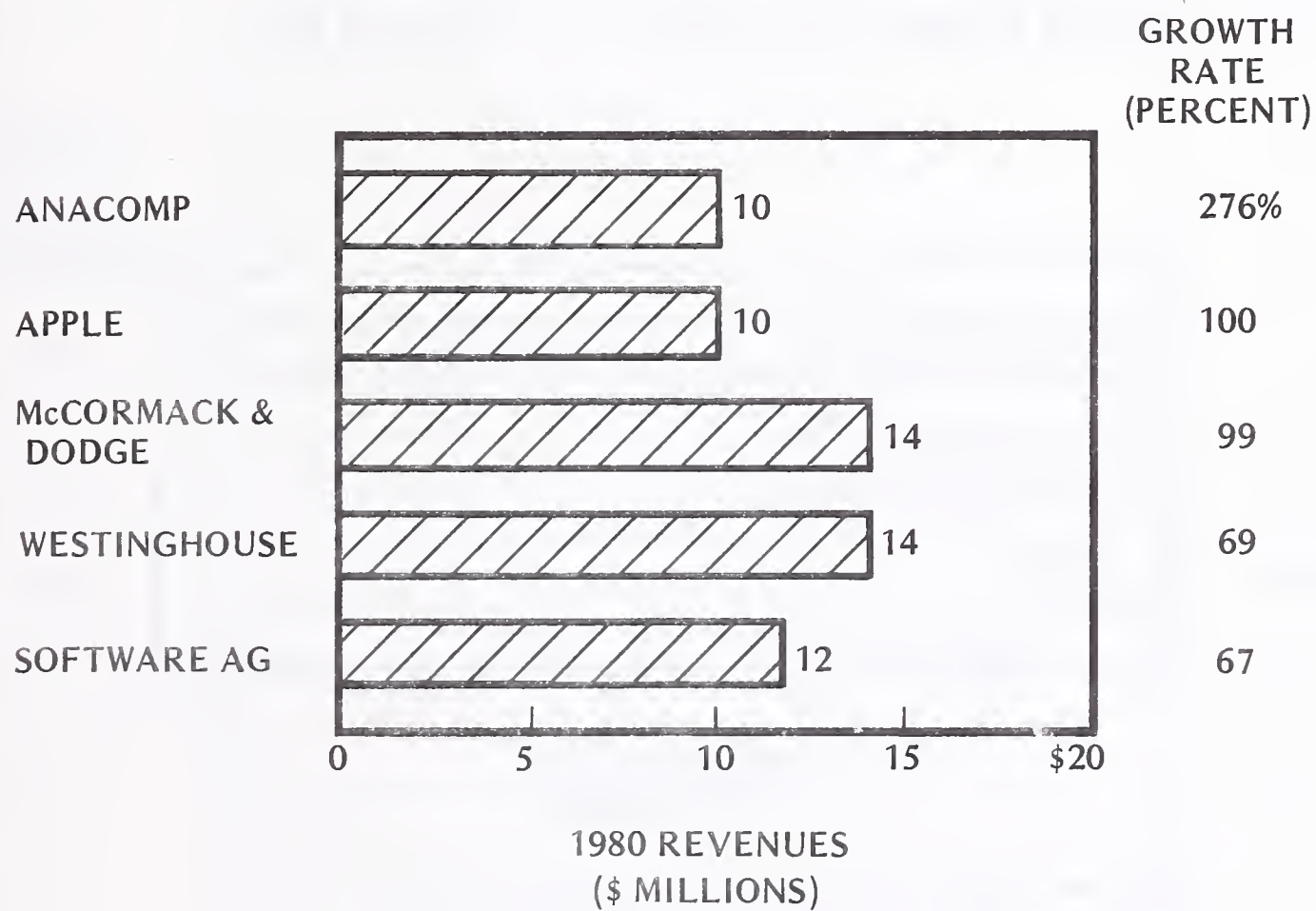
# LARGEST INDEPENDENT SOFTWARE PRODUCT VENDORS



INPUT

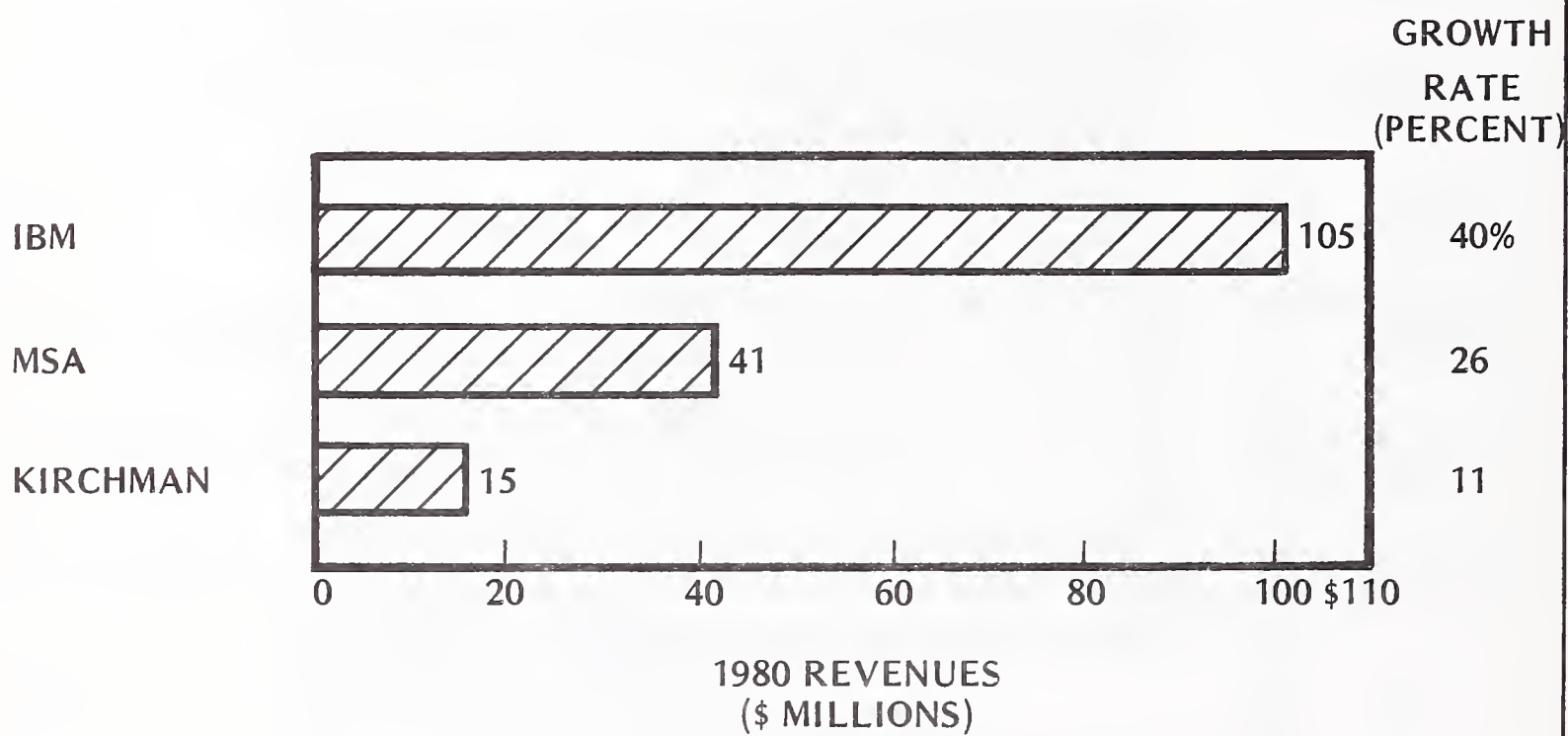


## FASTEST GROWING VENDORS - SOFTWARE PRODUCTS OVER \$10 MILLION



INPUT

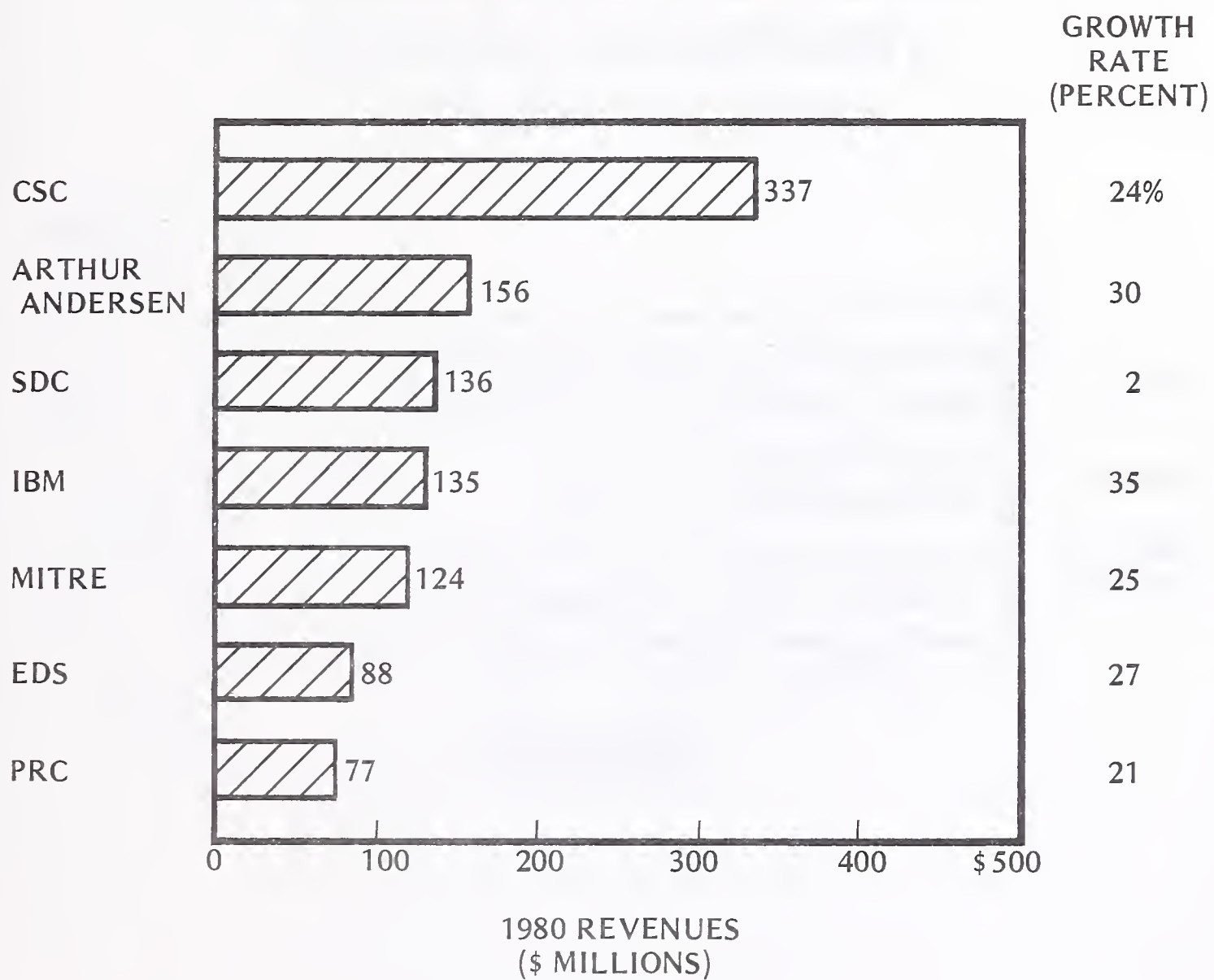
## LARGEST APPLICATIONS SOFTWARE PRODUCT VENDORS



INPUT

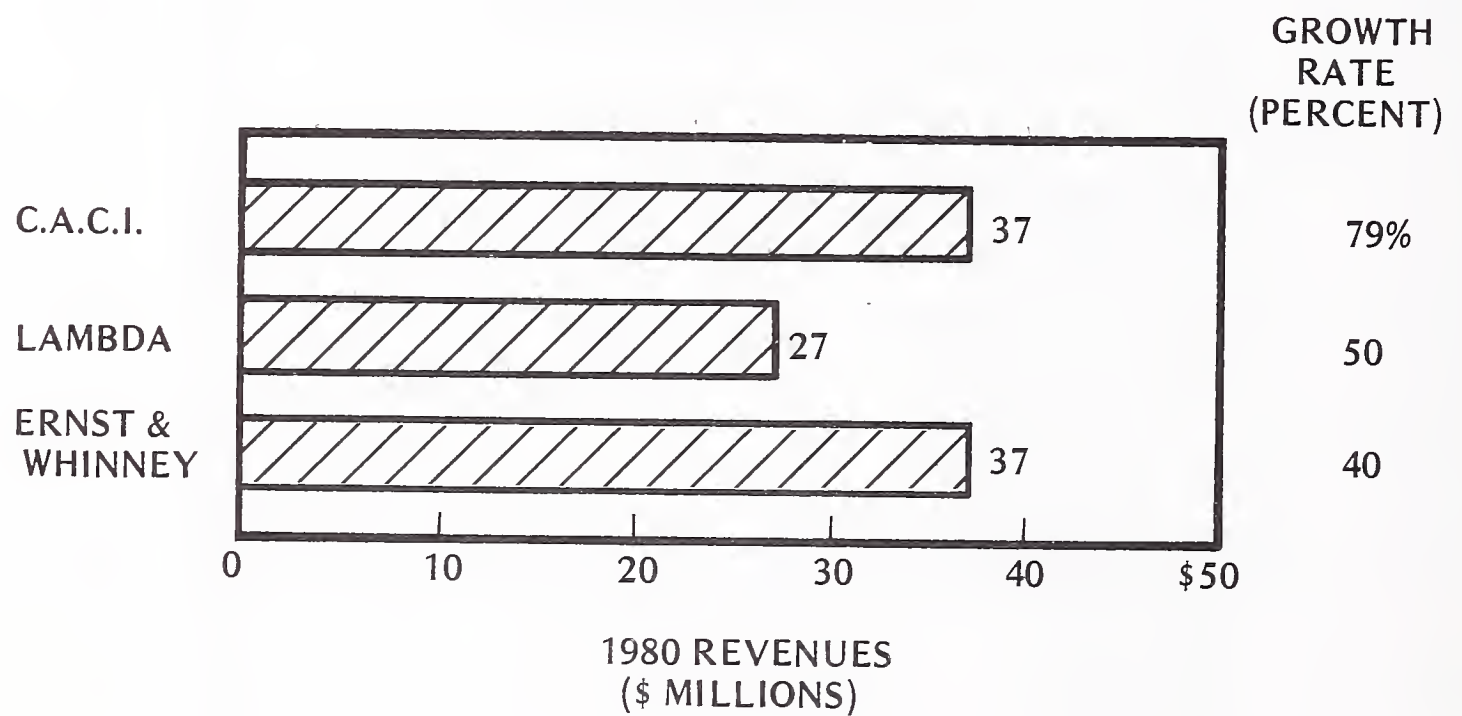


## LARGEST PROFESSIONAL SERVICES VENDORS

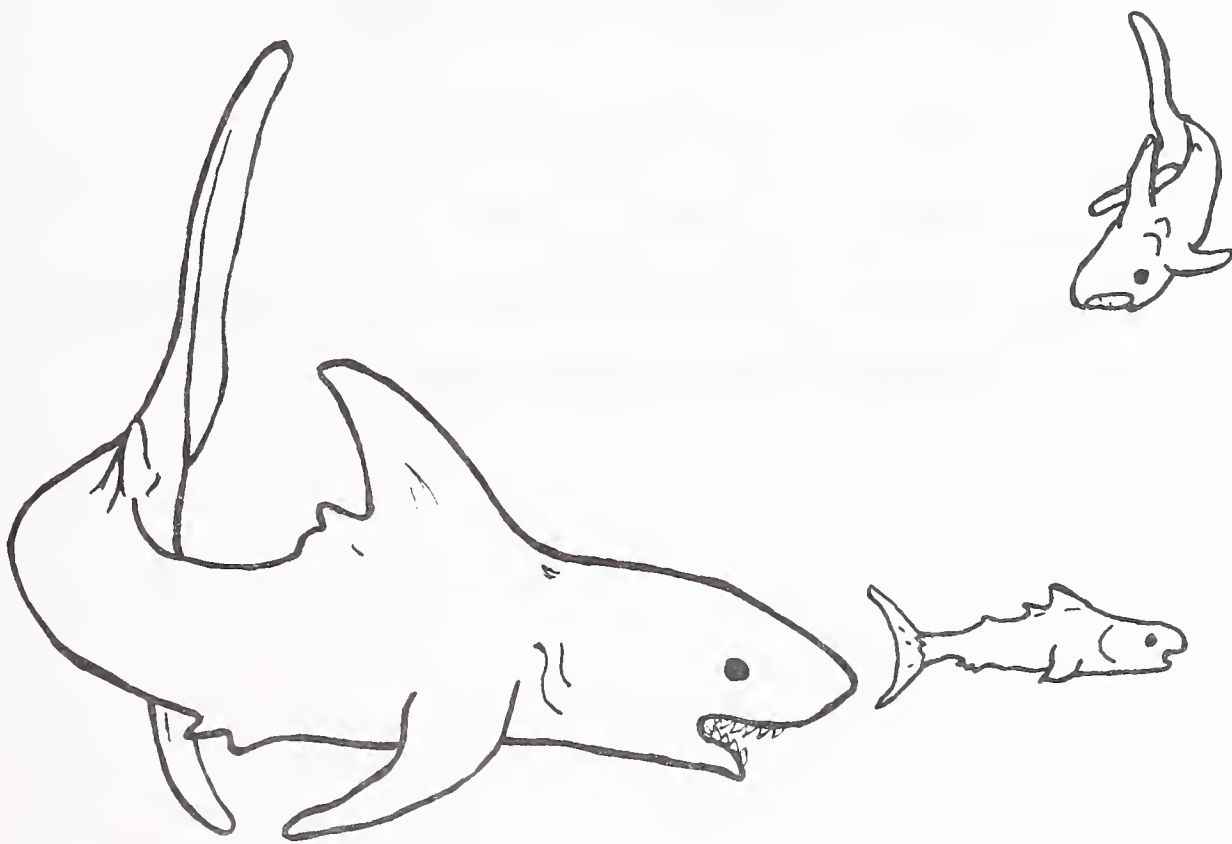


INPUT

## FASTEST GROWING VENDORS - PROFESSIONAL SERVICES OVER \$25 MILLION



INPUT



INPUT

## ACQUISITION ACTIVITY

- 1979 107 ACQUISITIONS
- 1980 87 ACQUISITIONS
- 1981  $\approx$ 50 ACQUISITIONS (THROUGH AUGUST)
- ACQUISITIONS GETTING LARGER

INPUT

## MAJOR ACQUISITIONS

| <u>ACQUIRED</u> | <u>ACQUIROR</u> | <u>VALUE</u> |
|-----------------|-----------------|--------------|
| MDSI            | SCHLUMBERGER    | \$187M       |
| CALMA           | G.E.            | \$100M       |
| SDC             | BURROUGHS       | \$ 98M       |
| ISA             | UNITED TELECOM  | \$ 41M       |
| LAMBDA          | GEISCO          | \$ 22M       |

INPUT

## MAJOR ACQUISITIONS (Cont.)

| <u>ACQUIRED</u>                | <u>ACQUIROR</u>   | <u>VALUE</u> |
|--------------------------------|-------------------|--------------|
| SOURCE<br>TELECOMPUTING        | READERS<br>DIGEST | \$ 12M       |
| DASD                           | CAP GEMINI        | \$ 11M       |
| DATA CORPORATION<br>OF AMERICA | ADP               | \$ 5M        |

INPUT

## ACQUISITION ACTIVITY

| <u>ACQUIRED</u>               |   | <u>ACQUIROR</u> |
|-------------------------------|---|-----------------|
| TRANSPORTATION COMPUTING      | } | INFORMATICS     |
| AUTOMATED SYSTEMS DESIGN      |   |                 |
| PROFESSIONAL SOFTWARE SYSTEMS |   |                 |
| CENTURION                     |   | EDS             |
| MICROBAND                     | } | TYMSHARE        |
| ITT TRAVEL SERVICES           |   |                 |
| MCCI                          |   | SUN             |
| PRAXA                         |   | XEROX           |

INPUT



## ACQUISITION ACTIVITY

| <u>ACQUIRED</u>                      | <u>ACQUIROR</u>          |
|--------------------------------------|--------------------------|
| PREDICASTS                           | INDIAN HEAD              |
| COMPUTER APPLICATIONS<br>CORPORATION | PIONEER<br>HYBRID        |
| COMPREHENSIVE COMPUTING              | COMSAT                   |
| WORLDWIDE COMPUTER<br>SERVICES       | GENERAL<br>DEVICES, INC. |
| WORLDWIDE SOFTWARE<br>ASSOCIATION    | OXFORD<br>SOFTWARE CORP. |

INPUT

## OTHER ACQUISITIONS

| <u>ACQUIRED</u>  | <u>ACQUIROR</u>   |
|--|-------------------|
| SOFTWARE INTERNATIONAL<br>BANKING SYSTEMS, INC.<br>ENERGY ENTERPRISES, INC.<br>ISD | GEISCO<br><br>CDC |
| PEACHTREE SOFTWARE   | MSA               |

INPUT

## OTHER ACQUISITIONS

| <u>ACQUIRED</u>                                     | <u>ACQUIROR</u>            |
|---|----------------------------|
| EXECUTIVE SYSTEMS, INC.<br>FLORIDA COMPUTER SYSTEMS | AMS                        |
| DSI   | ANACOMP                    |
| RAPIDATA  | NATIONAL<br>DATA           |
| BUNKER RAMO   | ALLIED<br>(CHEMICAL) CORP. |

INPUT

**. . . AND MORE TO COME**

**INPUT**



## **IV. REVIEW OF KEY ISSUES**

- BUYER CHANGES
- OFFICE SYSTEMS
- ON-LINE SYSTEMS
- PERSONAL SYSTEMS
- OPTICAL STORAGE
- OTHER DEVELOPMENTS

— INPUT —

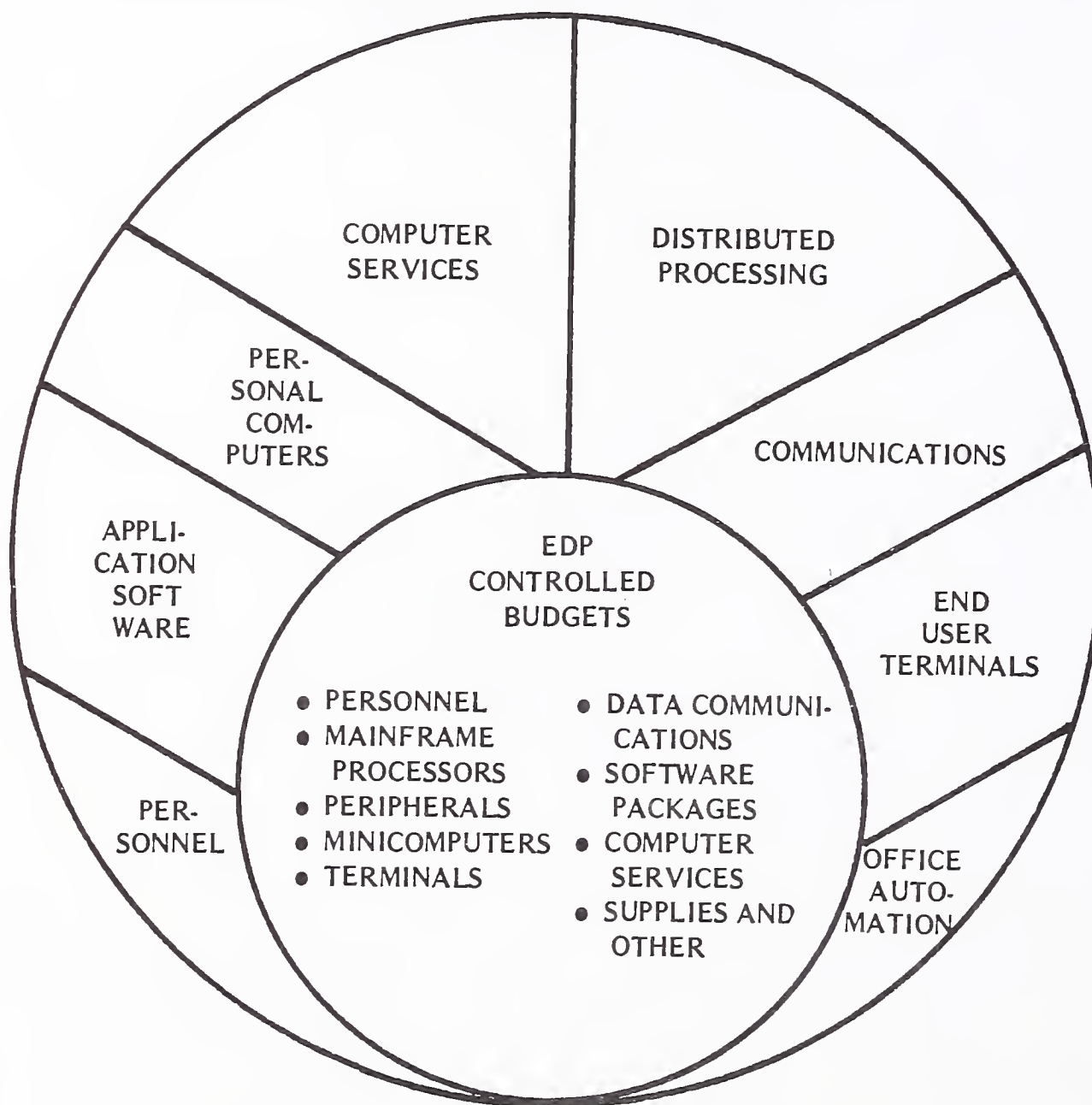




## **BUYER CHANGES**

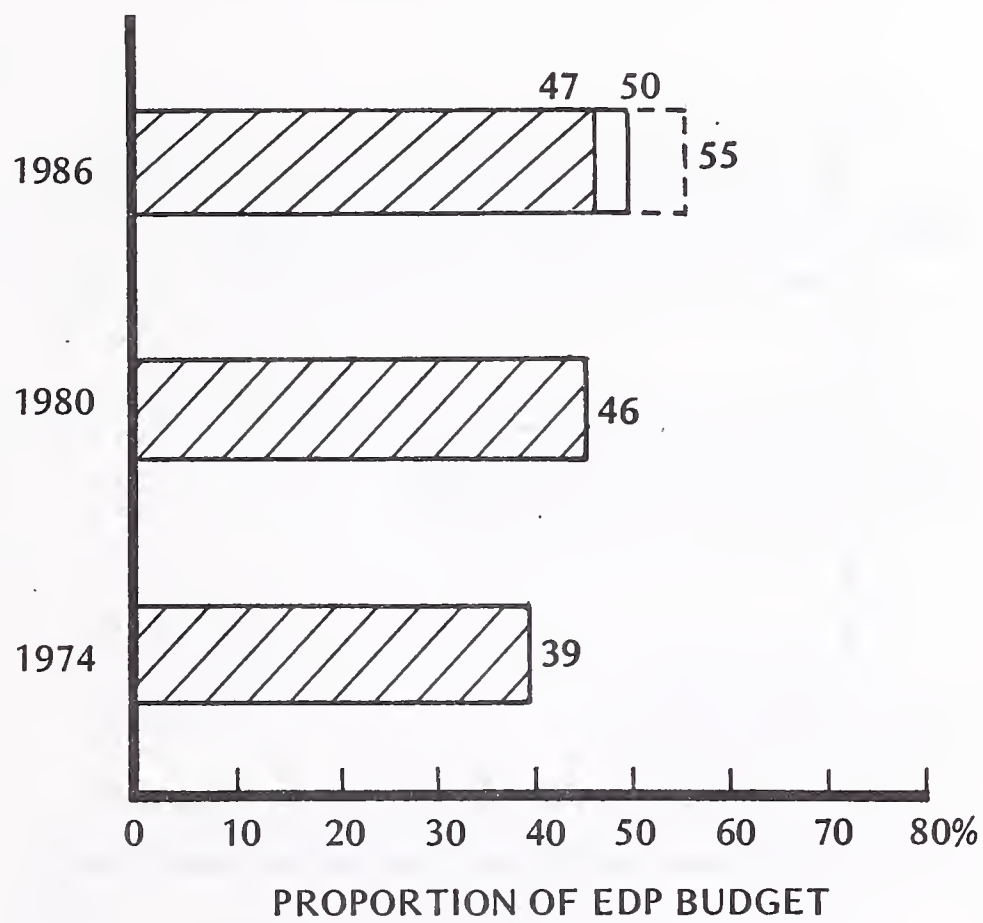
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## COMPONENTS OF THE TOTAL INFORMATION PROCESSING BUDGET



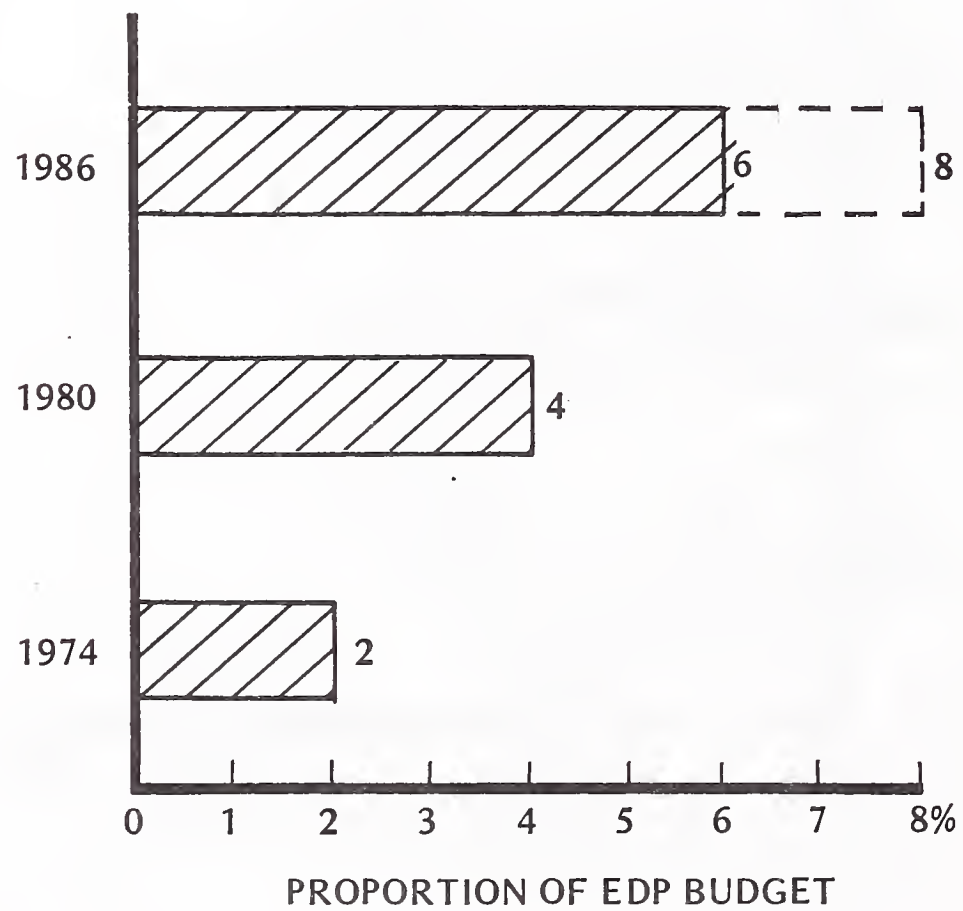
INPUT

## PERSONNEL



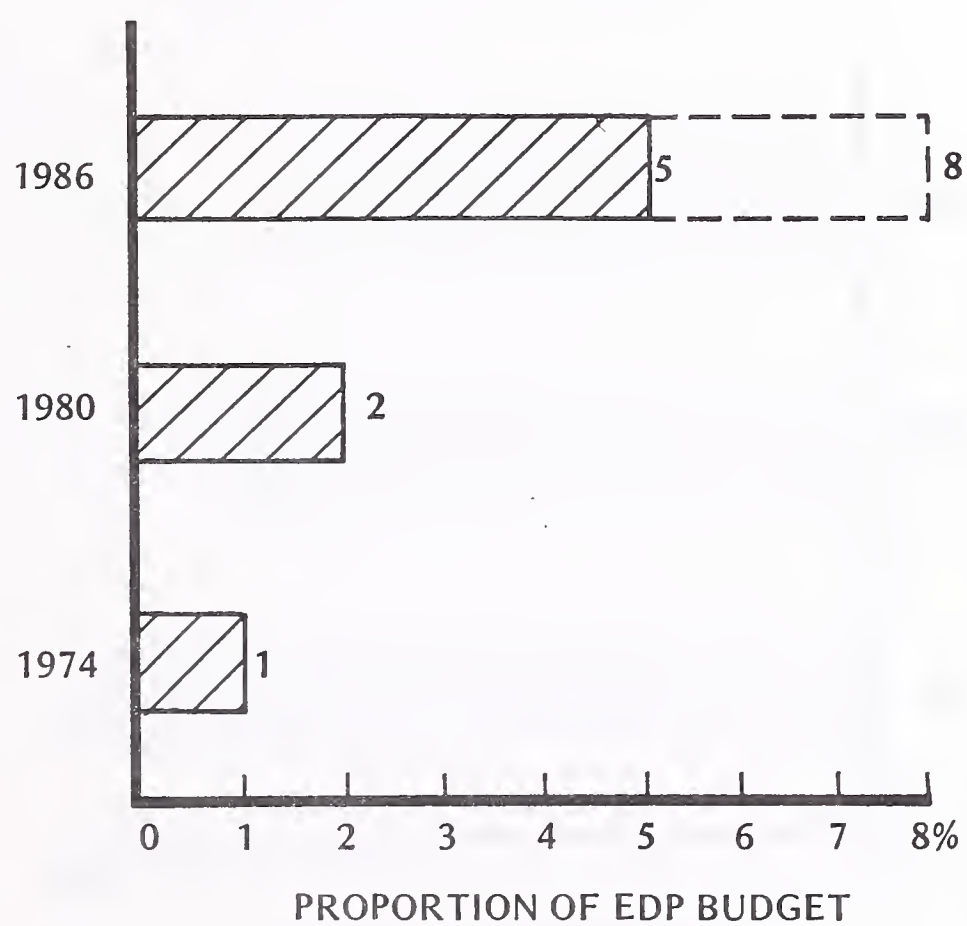
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## TELECOMMUNICATIONS



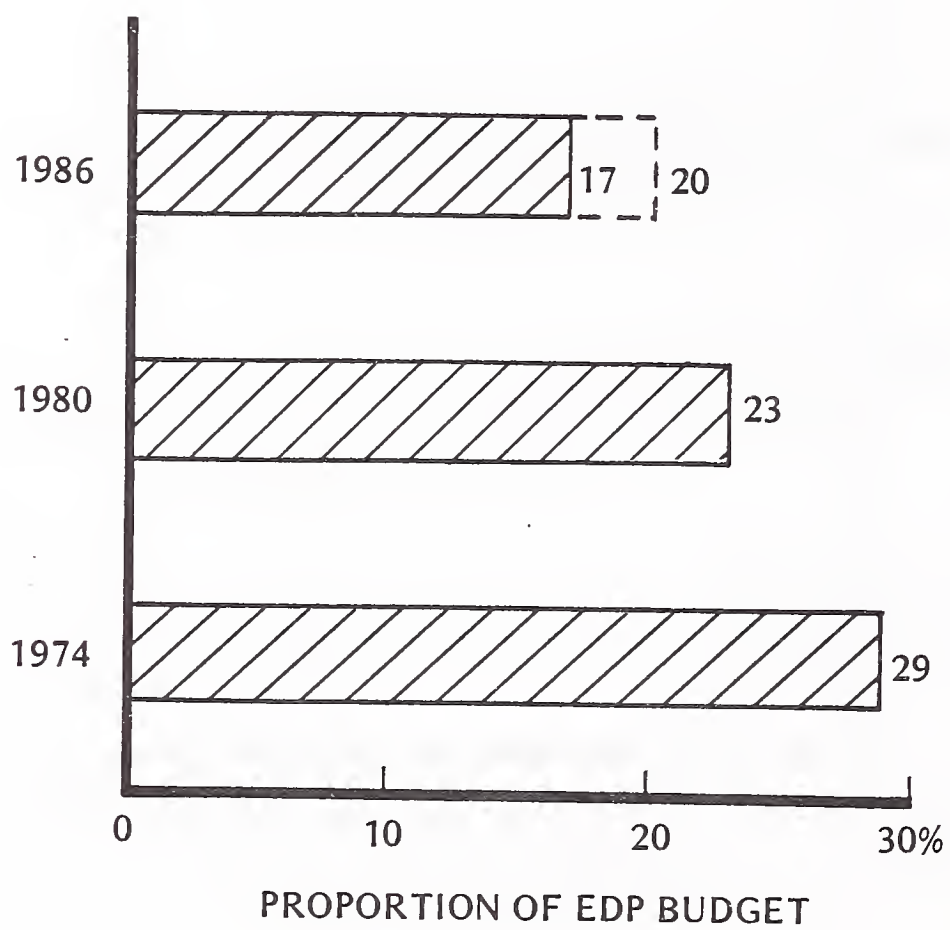
INPUT

## SOFTWARE PRODUCTS



INPUT

## CENTRAL SYSTEMS



INPUT

## OFFICE SYSTEMS

INPUT

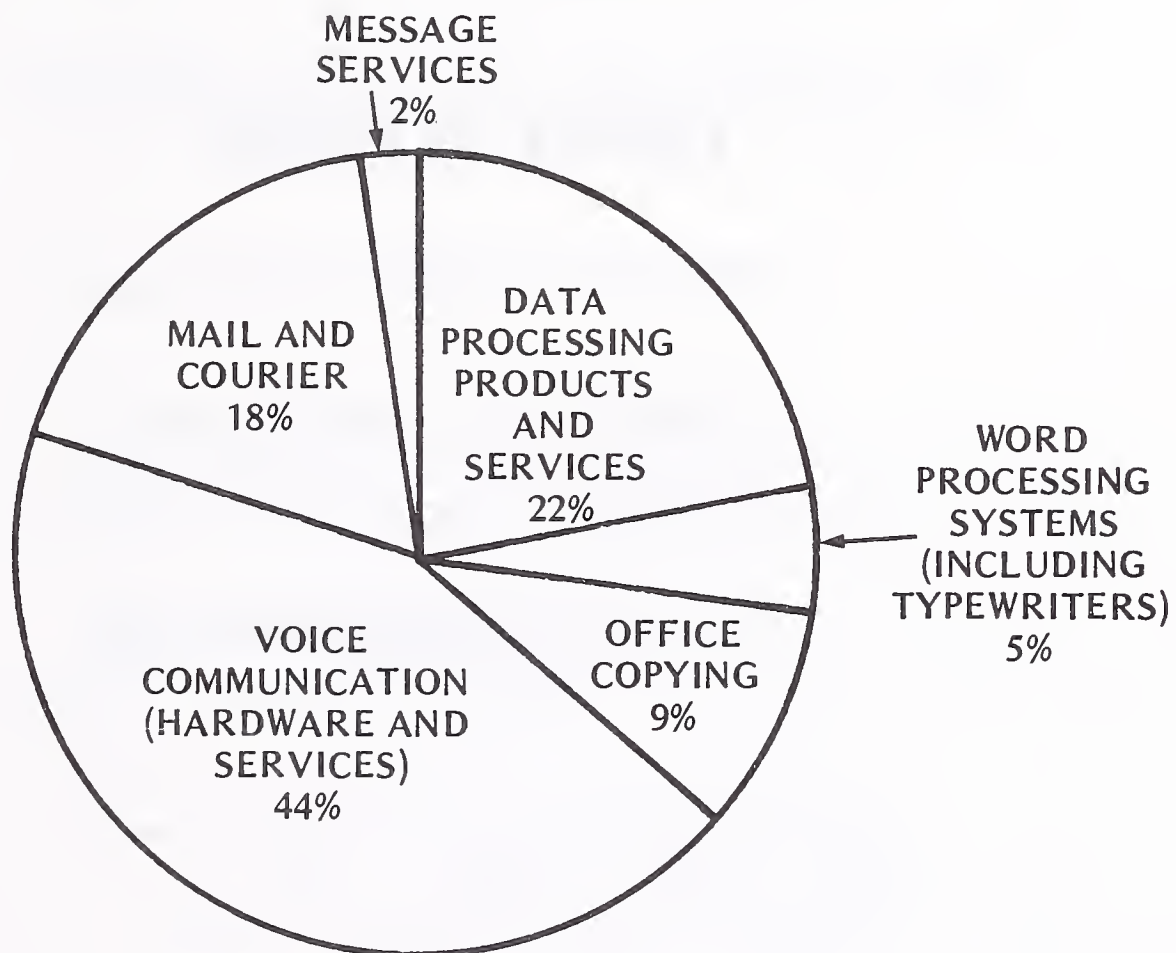


## **OFFICE SYSTEMS**

- COMMUNICATIONS PROBLEM
- COMPUTER AIDED MANAGEMENT
- MULTIPURPOSE SYSTEMS
- PERSONAL SYSTEMS MAJOR BREAKTHROUGH

INPUT

## BREAKDOWN OF OFFICE PRODUCT AND SERVICE EXPENDITURES



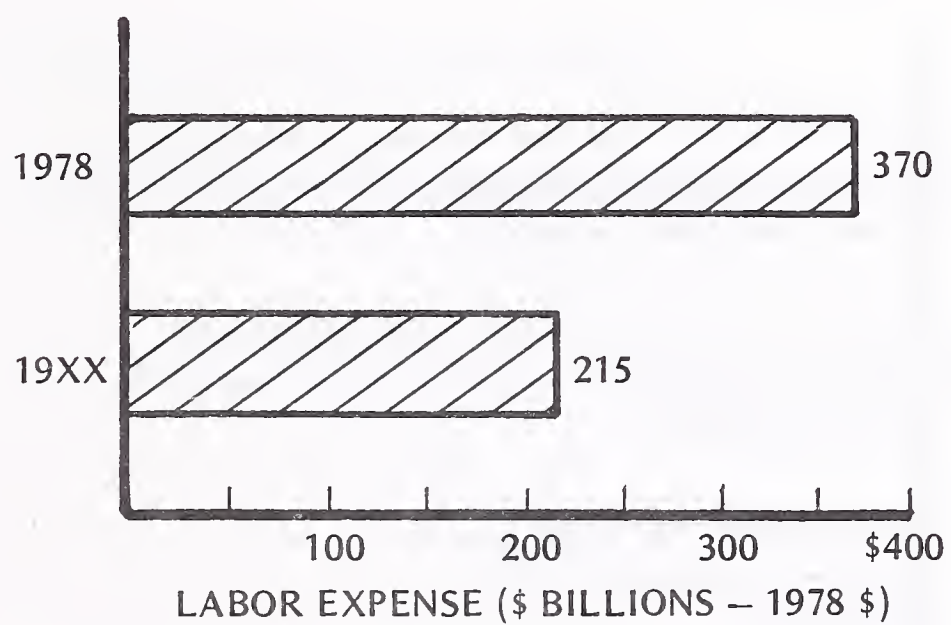
INPUT

## OFFICE SYSTEMS

- POTENTIAL CHANGE IS FRIGHTENING
- "PRODUCTIVITY POTENTIAL" (PP)  
MEASURE
- EACH OPERATION NEEDS ANALYSIS

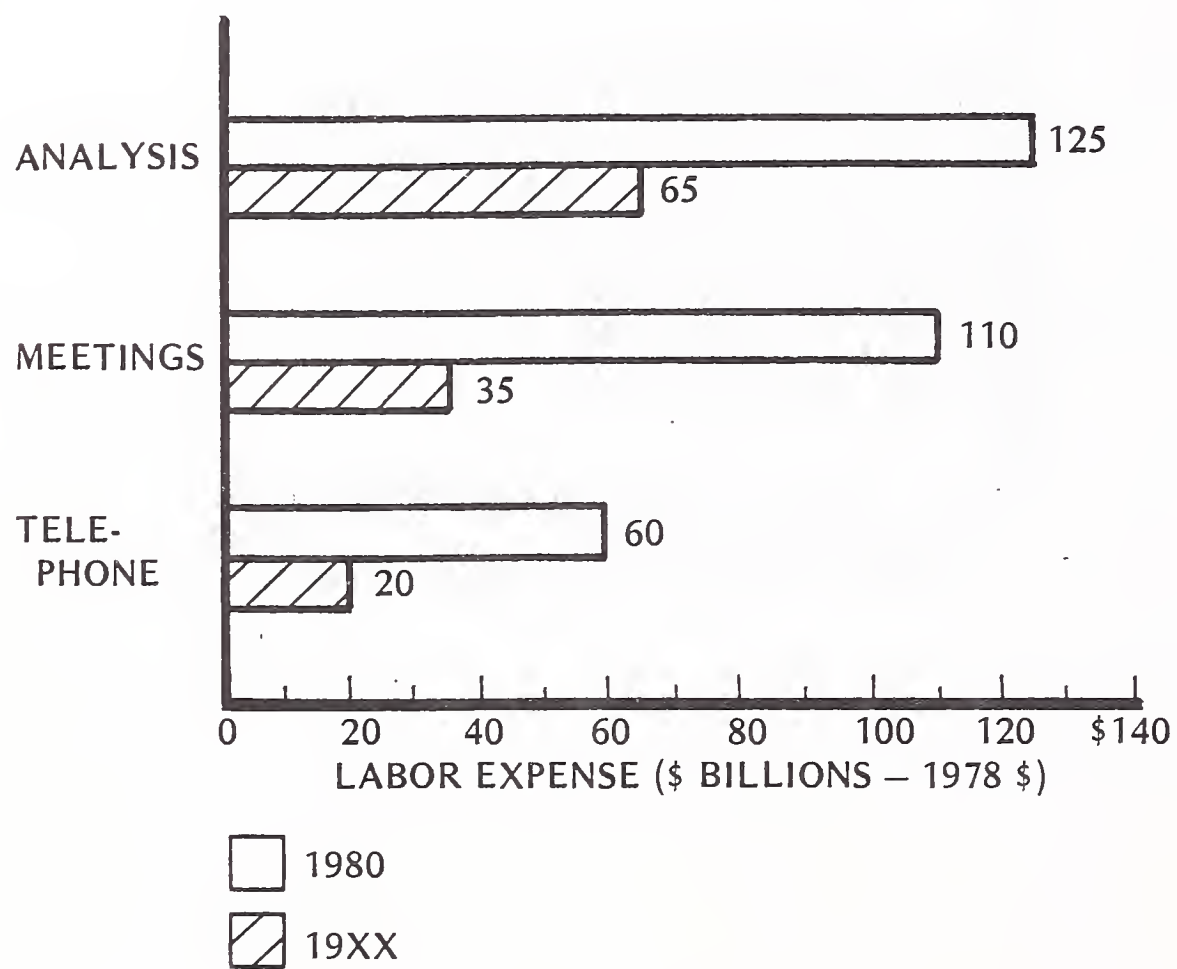
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## PROFESSIONAL & TECHNICAL PP



INPUT

## PROFESSIONAL AND TECHNICAL PP



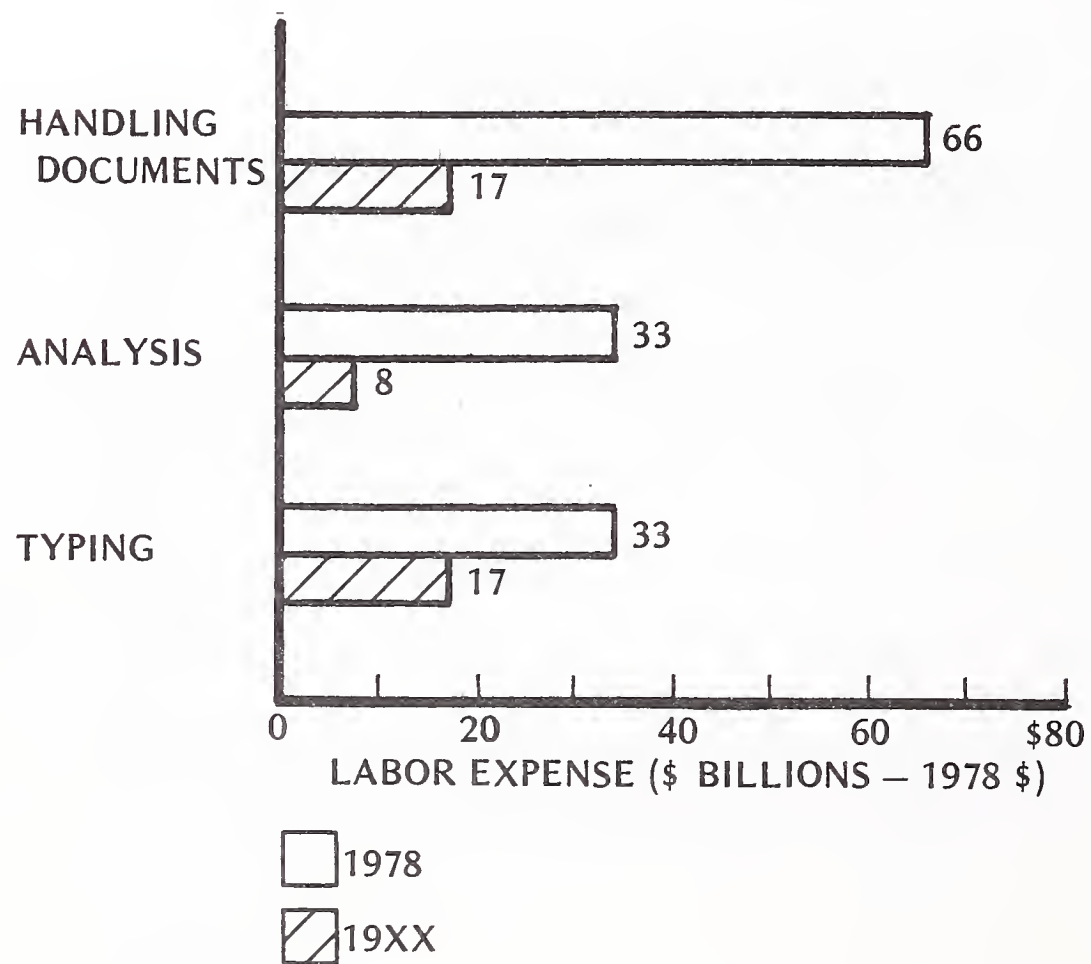
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## **PROFESSIONAL AND TECHNICAL PP**

- CURRENT MEETINGS 75% REPLACEABLE
- NEW PROCESSES 10X EFFICIENCY
- MEETINGS TRANSFER INFORMATION

INPUT

## CLERICAL AND TYPING PP



INPUT



## **TELEPHONE CALLS**

- REPLACED BY ELECTRONIC MAIL  
AND VOICE STORE/FORWARD
- REDUCTION IN PHONE NEEDS
- CONTROL IMPROVES
- EXTERNAL REMAINS

INPUT

## ON-LINE SYSTEMS

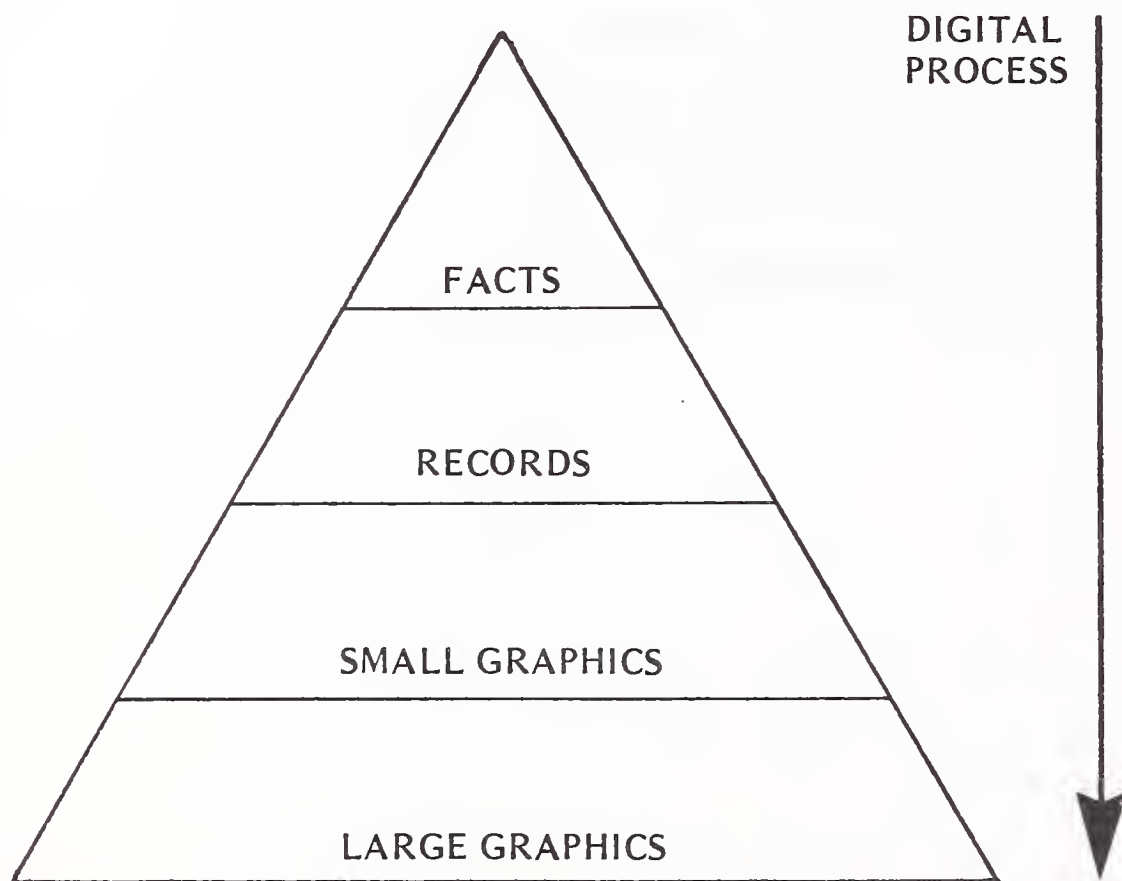
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## **PAPER PREDOMINATES**

- GROWTH OF NON-IMPACT PRINTING
- WILL DOMINATE THROUGH 1990s
- "EXTERNAL" PAPER HARD TO REPLACE
- EDP PAPER USE REPLACEABLE

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# INFORMATION ORGANIZATION



INPUT

- FACTS BASES ESSENTIALLY SMALL
  - TELEPHONE LIST
  - ON-LINE NOW
  - CAN BE DYNAMIC
- RECORDS/TRANSACTION HISTORY
  - MOVING TO ON-LINE
  - DESCRIPTION OF ACTIONS

INPUT

- SMALL GRAPHICS
  - SIGNATURES
  - EXTRACTIONS
- LARGE GRAPHICS
  - FULL DOCUMENTS
  - PICTURES

INPUT

## VOLATILITY/IMAGE CONTENT

| IMAGE<br>CONTENT | DATA VOLATILITY  |  |  |
|------------------|--|--|--|
|                  | LOW  | MEDIUM   | HIGH   |
| LOW              | <ul style="list-style-type: none"> <li>• GENERAL INTEREST BOOKS</li> </ul>                                     | <ul style="list-style-type: none"> <li>• PERIODICAL INDICES</li> <li>• LEGAL CITATIONS</li> </ul>        | <ul style="list-style-type: none"> <li>• STOCK QUOTATIONS</li> </ul> |
| MIXED            | <ul style="list-style-type: none"> <li>• GEOLOGICAL DATA</li> <li>• ENGINEERING AND SCIENTIFIC DATA</li> </ul> | <ul style="list-style-type: none"> <li>• PRODUCT DESCRIPTIONS</li> <li>• ECONOMIC TIME SERIES</li> </ul> | <ul style="list-style-type: none"> <li>• NEWS SERVICES</li> </ul>    |
| HIGH             | <ul style="list-style-type: none"> <li>• CARTOGRAPHIC DATA</li> <li>• ELECTRONIC PUBLISHING</li> </ul>         | <ul style="list-style-type: none"> <li>• PATENT DESCRIPTIONS</li> </ul>                                  |  |

INPUT



## **PERSONAL SYSTEMS**

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## PERSONAL SYSTEMS

- 600,000 SYSTEMS IN 1986  
IN FORTUNE 500/50 COMPANIES
- "1 COMPUTER FOR EVERY 10 EMPLOYEES  
BY 1986"
- REPLACE TERMINALS/WORK STATIONS
- EQUIVALENT DEVELOPMENT TIME
  - MAINFRAMES, 20 YEARS
  - PERSONAL COMPUTERS, X YEARS

INPUT

## **PERSONAL SYSTEMS**

- USED BY PROFESSIONALS
- USED BY MANAGERS/EXECUTIVES
- GRAPHICS ORIENTED
- LARGE PROCUREMENTS UNDERWAY
- "TROJAN HORSES"

INPUT

## PERSONAL SYSTEMS SOFTWARE

- NON-TRADITIONAL PRICING
- PORTABLE
- DISPOSABLE
- LISTED SOURCES - 2,000
  - NON-TRADITIONAL
  - FEW VIABLE

INPUT

## **SOFTWARE DISTRIBUTION CHANNELS**

- USER GROUPS/CLUBS
- MANUFACTURERS
- STORES
- SYSTEM VENDORS
- EMPLOYEES
- SOFTWARE COMPANIES
- SOFTWARE BROKERS/PUBLISHERS
- SUPPLIES COMPANIES
- NON-COMPUTER COMPANIES

INPUT

# PERSONAL SYSTEMS APPLICATIONS

- NUMBER IDENTIFIED BY POTENTIAL USERS

|   |               |    |
|---|---------------|----|
| — | MARKETING     | 22 |
| — | MANUFACTURING | 12 |
| — | ENGINEERING   | 24 |
| — | OPERATIONS    | 18 |
| — | PLANNING      | 22 |
| — | FINANCE       | 24 |
| — | LEGAL         | 14 |
| — | PERSONNEL     | 20 |

INPUT

## **APPLICATIONS - TRADITIONAL**

- ACCOUNTING
- PAYROLL
- INVENTORY MANAGEMENT
- STATISTICS
- ENGINEERING/SCIENTIFIC

INPUT



## **APPLICATIONS - CONTEMPORARY**

- TEXT PROCESSING
- ELECTRONIC MAIL
- PLANNING
- EDUCATION
- DECISION SUPPORT SYSTEMS

INPUT

## **APPLICATIONS - PERSONAL**

- FORECASTING
- PROJECT SCHEDULES
- CALENDARS
- LISTS
- CALCULATIONS

INPUT

## **SOFTWARE PROTECTION**

- LIKE BOOKS
- VENDORS MUST BE AGGRESSIVE

INPUT

## PERSONAL COMPUTER VENDORS

- IBM
- APPLE
- XEROX
- COMMODORE
- AT&T (?)
- RADIO SHACK
- HP

INPUT

## **IBM PERSONAL COMPUTER**

- IBM ASSEMBLED
  - INTEL 8088
  - EPSON PRINTER
  - TANDON DISKETTE
  - HITACHI DISPLAY
- DEPOT MAINTENANCE

INPUT

## **IBM PERSONAL COMPUTER SOFTWARE**

- MICROSOFT: BASIC 80 AND ADVENTURE
- DIGITAL RESEARCH: CP/M
- PERSONAL SOFTWARE: VISICALC
- INFORMATION UNLIMITED SOFTWARE:  
EASY WRITER
- PEACHTREE SOFTWARE: ACCOUNTING
- PROGRAMS PROVIDED "AS IS"

INPUT

## **IBM PERSONAL COMPUTER**

- SYSTEM PRICE \$3,500 AND UP
- IBM COMMUNICATIONS COMPATIBLE
  - 3270 (SNA)
  - ASCII COMMUNICATIONS
- RECOGNIZES SMALL COMPUTERS FOR CORPORATE USE

INPUT



## **NON-TRADITIONAL IBM APPROACH**

- **PRODUCT "MANUFACTURING"**
- **DISTRIBUTION CHANNELS**
  - **EMPLOYEES**
  - **SEARS**
  - **COMPUTERLAND**
  - **IBM**
- **MAINTENANCE**
- **APPLICATIONS DEVELOPMENT**

INPUT

## **FUTURE**

- NETWORKING
  - LOCAL
  - REMOTE
- 8→16→32 BIT
- IS&R/DBMS
- PROGRAM GENERATORS
- VOICE/VIDEO PROCESSING
- OPTICAL STORAGE

INPUT

**PERSONAL COMPUTERS  
ARE NOT TOYS BUT...**

INPUT

**DON'T FORGET THE GAMES**

---

**"TRAINING THE NEXT GENERATION  
OF WARRIORS"**

INPUT

## **OPTICAL STORAGE DEVELOPMENTS**

INPUT

## CHARACTERISTICS

- READ AND READ/WRITE
- DISCONTINUITY IN PRICE/PERFORMANCE
- APPLICATION AND PROCESSING IMPACTS
- FUNCTIONAL AND MANAGEMENT IMPACTS

INPUT

## **INFORMATION STORAGE AND RETRIEVAL**

- REVOLUTIONIZE ON-LINE DATA BASE MARKET
- IN CONJUNCTION WITH COMMUNICATIONS SERVICES
- INCLUDES IMAGES

— INPUT —

## **FUNCTIONAL AND MANAGEMENT IMPACTS**

- INITIALLY REGARD AS ARCHIVAL/BACK-UP
- WILL STIMULATE MASSIVE INCREASE IN COMPUTING
- COMMUNICATIONS COSTS INCREASE
- TOTAL STORAGE COSTS MAY STAY SAME
- CATALYST FOR DECENTRALIZATION

INPUT



## **FUNCTIONAL AND MANAGEMENT IMPACTS**

- DATA SECURITY
  - PERMANENCY AN ADVANTAGE
  - COMPACTNESS DISADVANTAGE
  - SOPHISTICATED TRACKING NEEDED
- OFFICE-OF-THE FUTURE

INPUT

## IMPACTS

- SHORT TERM - ACCELERATION
- MID-TERM - REVOLUTION
- IBM'S TIMING IS UNCERTAIN
  - IMPACT ON INSTALLED BASE
  - "MINICOMPUTER DEBACLE" EXAMPLE

INPUT

## **OPTICAL STORAGE TIMEFRAME**

- INITIAL ANNOUNCEMENT 1982
  - IBM COMPATIBLE
  - DISK SUPPLIER
- ANNOUNCEMENTS FROM NON-DISK VENDORS IN 1982
- INITIAL SHIPMENTS 1983
- IBM ANNOUNCEMENT 1983
  - IBM SHIPMENT 1984 LATE
  - PC SHIPMENTS 1986

INPUT

## OTHER DEVELOPMENTS

INPUT

## **DATA BASE MACHINES (DBM)**

- BACK-END PROCESSORS
- DISTRIBUTED PROCESSORS
- SMART PERIPHERALS

INPUT

## **DBM VENDORS**

- SET THEORETIC INFORMATION SYSTEMS (STIS)
- SOFTWARE AG
- COMSHARE
- BRITTEN-LEE

INPUT

## DB ORGANIZATION

- HOST SYSTEMS FOR:
  - DIRECTORIES
  - BACK-UP
  - HIGH-SECURITY DEPOSIT
  - INTER DB COMPATIBILITY
  - CONTROL

INPUT

## DB ORGANIZATION

- REMOTE SYSTEMS
  - USER FRIENDLY
  - NEW DBMS
  - DISTRIBUTED DBM
  - FAST GROWTH

INPUT



## FORECASTS FOR IBM

- IMS HOST
- "X" AT NODES
- BRIDGE BETWEEN THEM

INPUT

## **LARGE MAINFRAME DEVELOPMENTS**

- NEW IBM PRODUCT MID-1982
- 1984 LARGE MAINFRAME PRICE REDUCTIONS
  - ACSYS/STC PRODUCTS
  - REVENUE ENHANCEMENT ELSEWHERE
- AMDAHL/NAS REMAIN VIABLE

INPUT

## **CUSTOM SYSTEMS**

- INCREASING PRESSURE FOR CUSTOM SYSTEMS
- DRAMATIC PERFORMANCE IMPROVEMENT
- "SYSTEM" GENERATORS
- DEFENSE DEPARTMENT EXAMPLES
- MAINTENANCE ISSUE

INPUT

## **V. INFORMATION SERVICES INDUSTRY**

- FORECASTS
- BUSINESS GRAPHICS
- ENERGY INDUSTRY MARKETS
- APPLICATIONS SOFTWARE PRODUCT  
MARKETS
- ON-LINE DATA BASE MARKETS

INPUT



# FORECASTS

INPUT

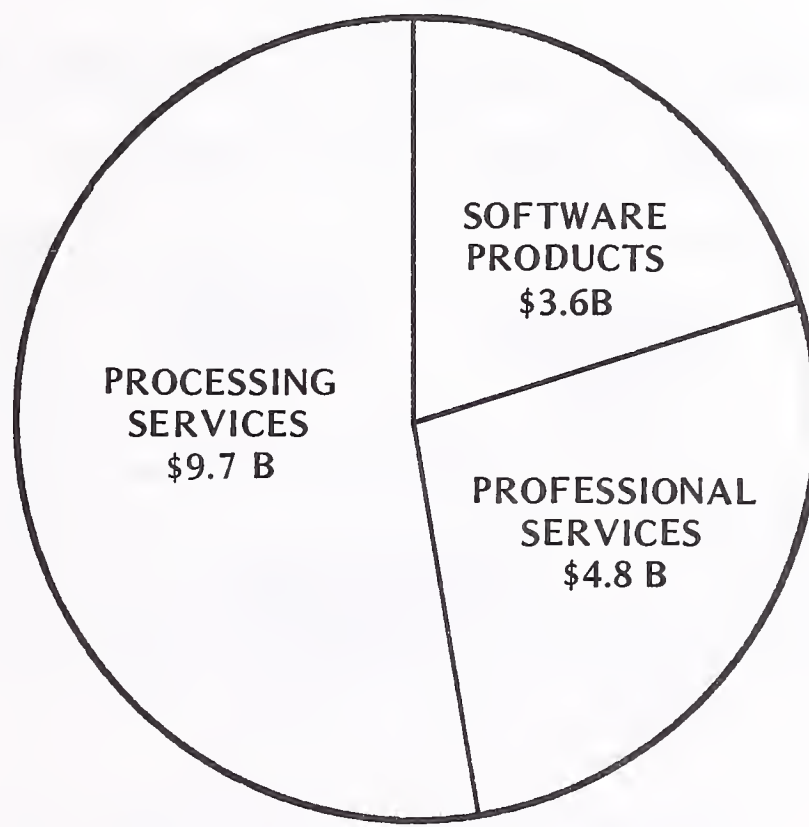
## **ASSUMPTION**

- 9.8% INFLATION RATE  
(PRODUCTION PRICE INDEX FORECAST)
- DEFLATORS DIFFERENT FOR EACH  
TYPE OF SERVICE

INPUT

# INFORMATION SERVICES INDUSTRY

1981



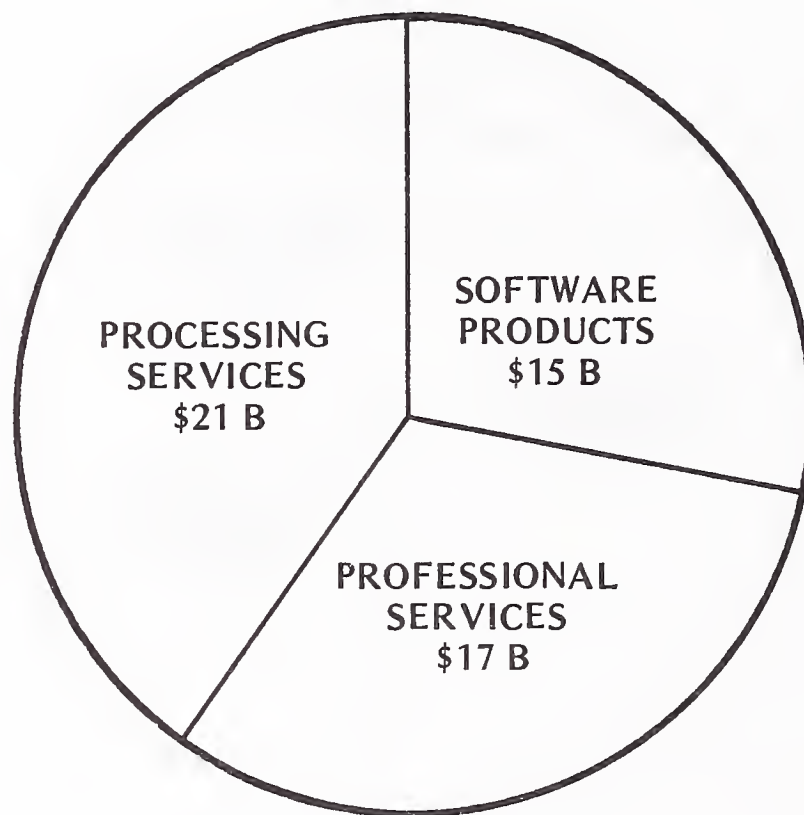
\$18 BILLION

INPUT



# INFORMATION SERVICES INDUSTRY

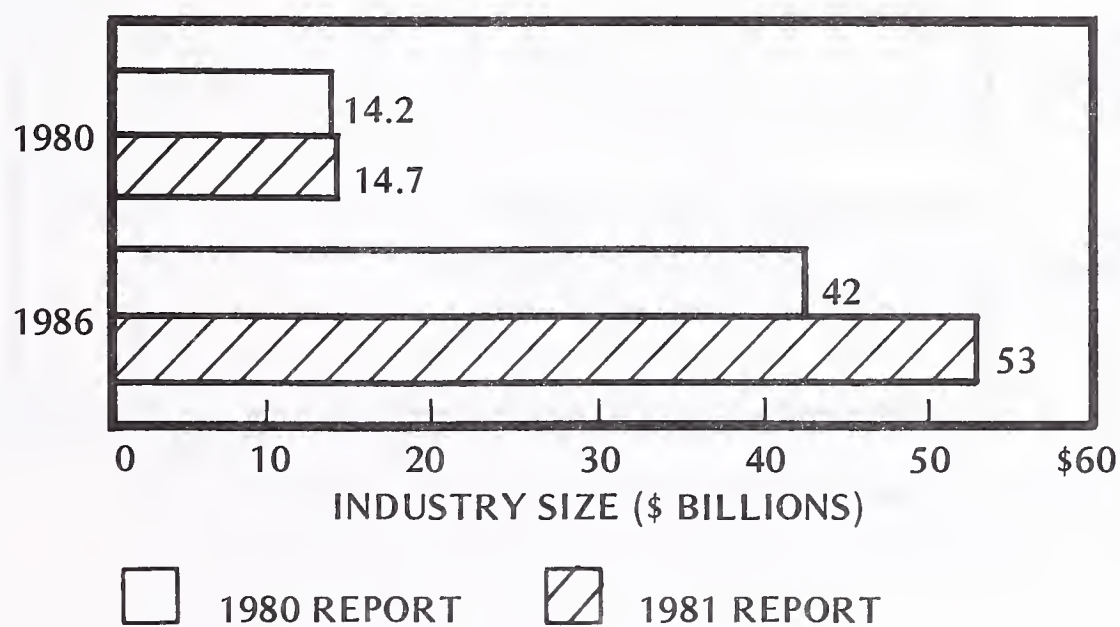
1986



\$53 BILLION

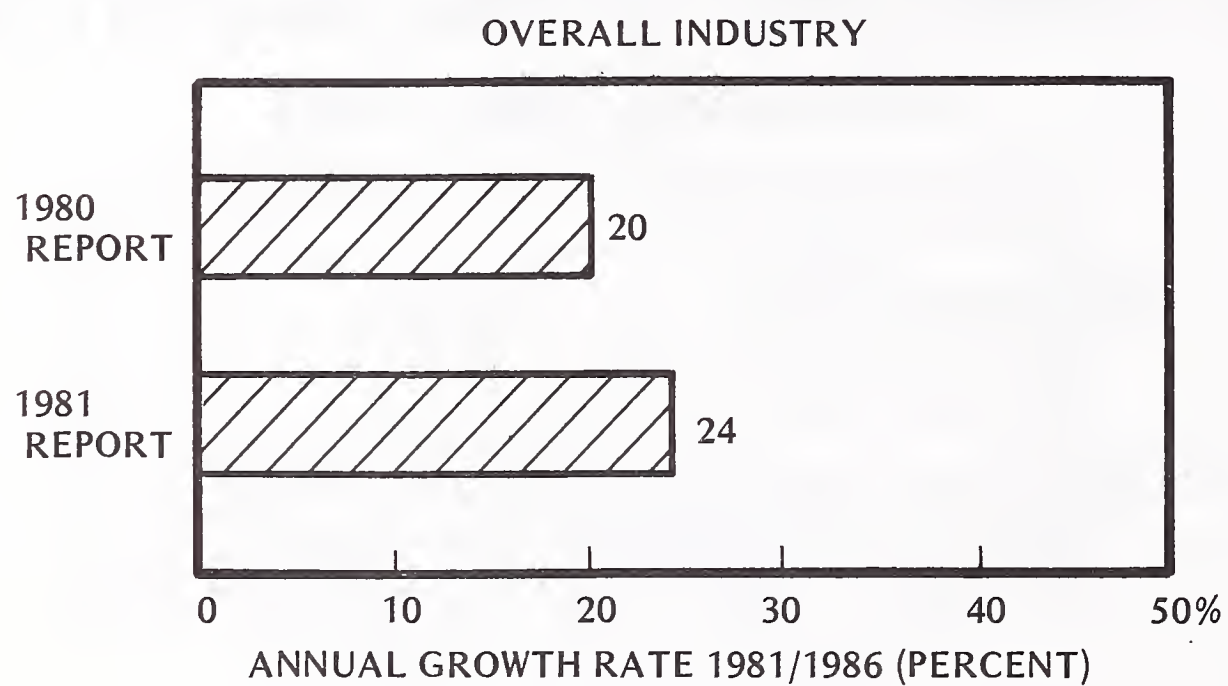
INPUT

## U.S. INFORMATION SERVICES INDUSTRY SIZE - CHANGES 1980/1981



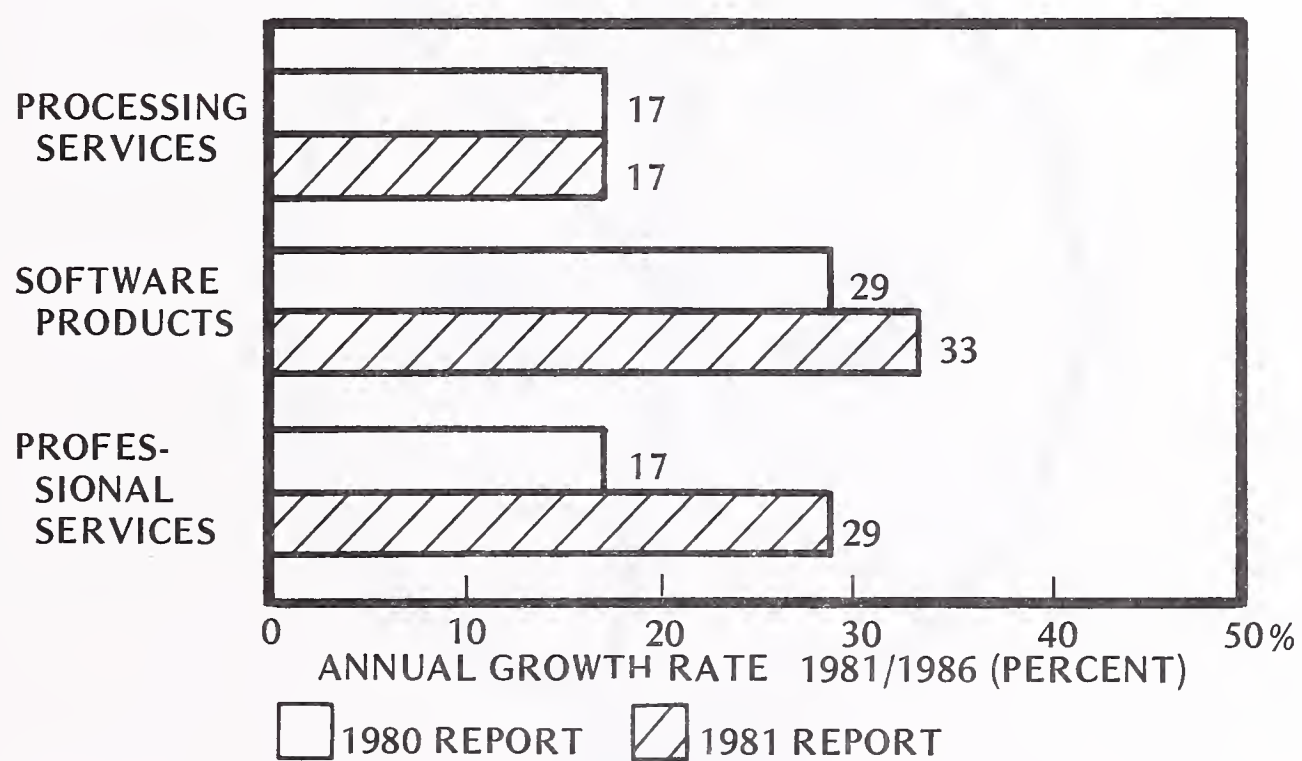
INPUT

## IS MARKET GROWTH FORECASTS - CHANGES 1980/1981



INPUT

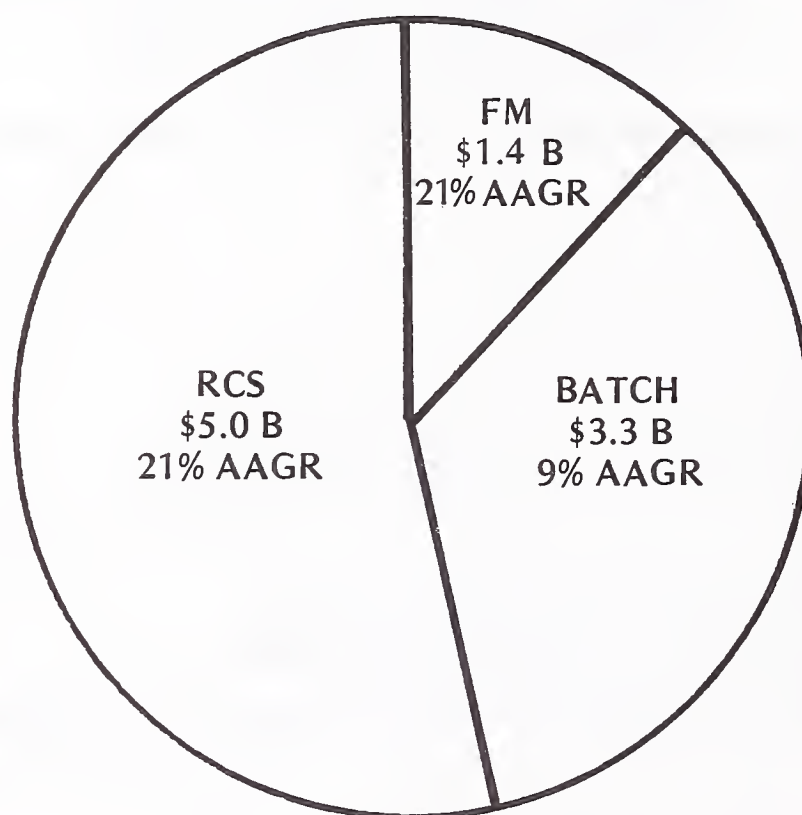
## IS MARKET GROWTH FORECASTS - CHANGES 1980/1981



INPUT

## PROCESSING SERVICES

1981

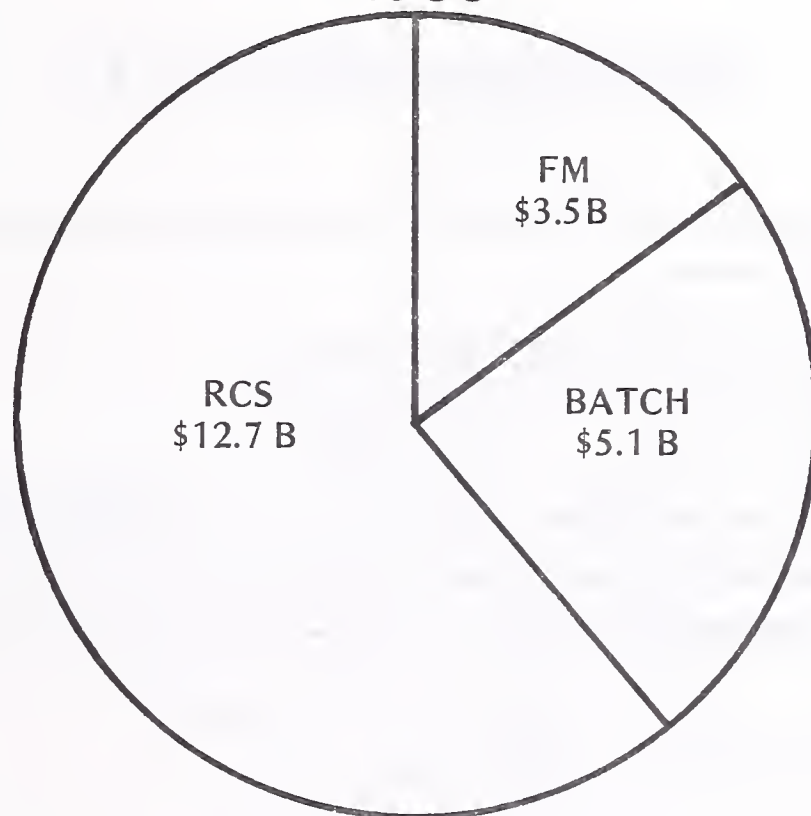


\$9.7 BILLION

INPUT

## PROCESSING SERVICES

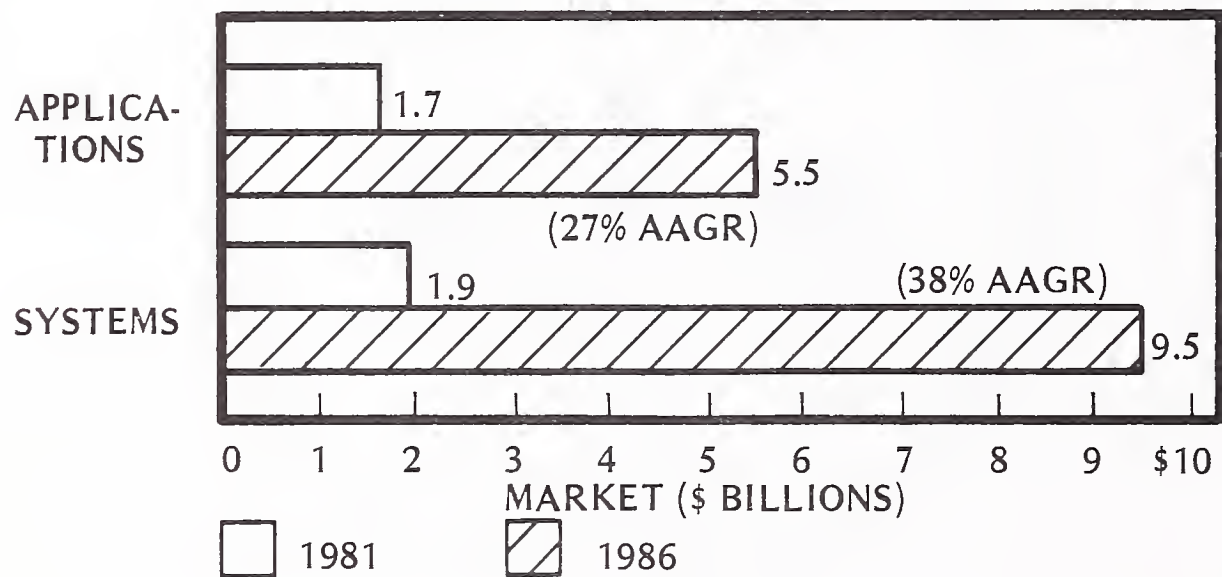
1986



\$21 BILLION

INPUT

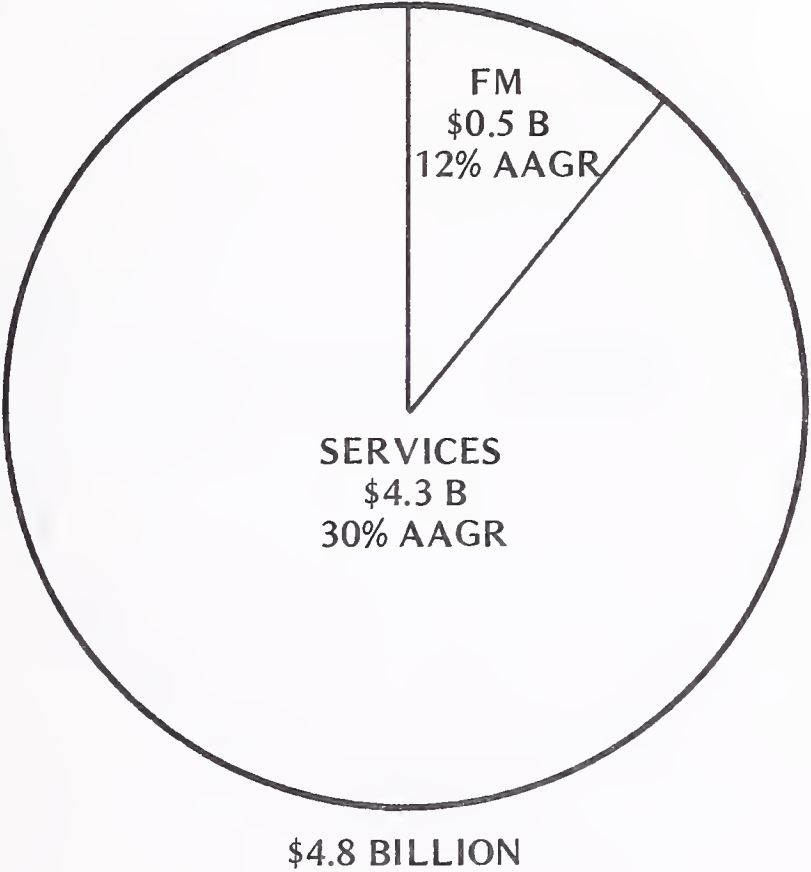
## SOFTWARE PRODUCTS



INPUT



**PROFESSIONAL SERVICES**  
**1981**

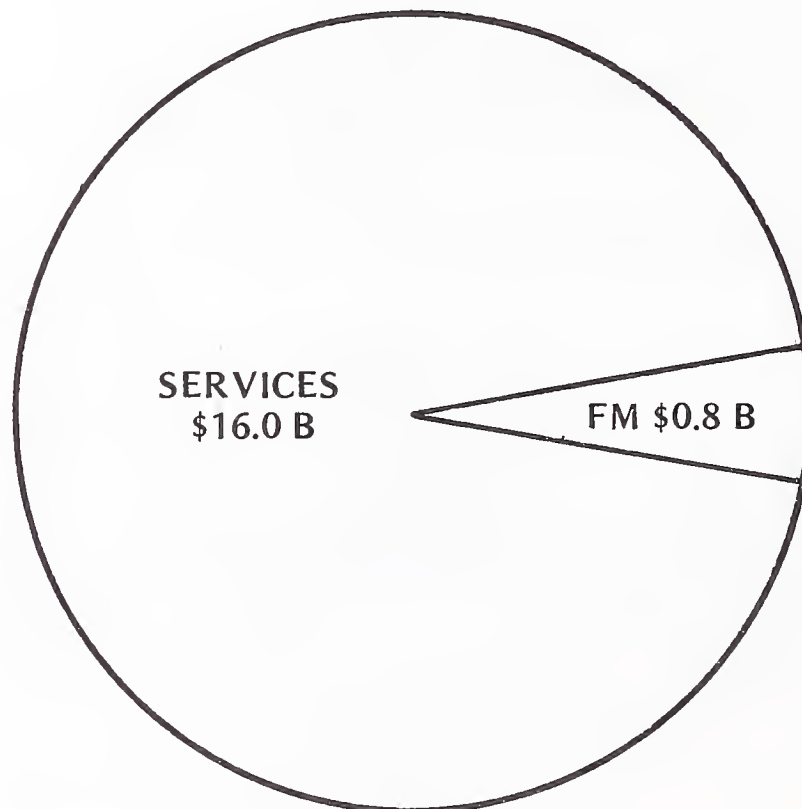


INPUT



# PROFESSIONAL SERVICES

1986



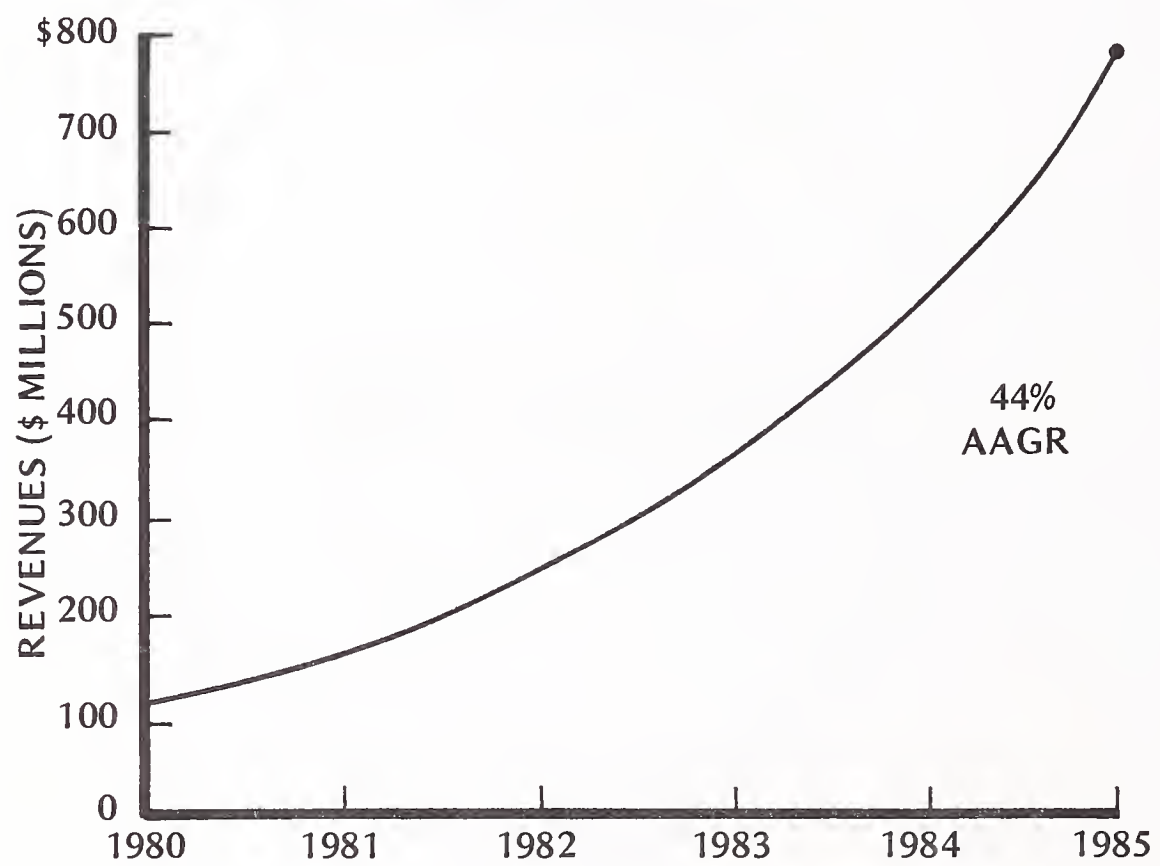
\$16.8 BILLION

INPUT

## **BUSINESS GRAPHICS**

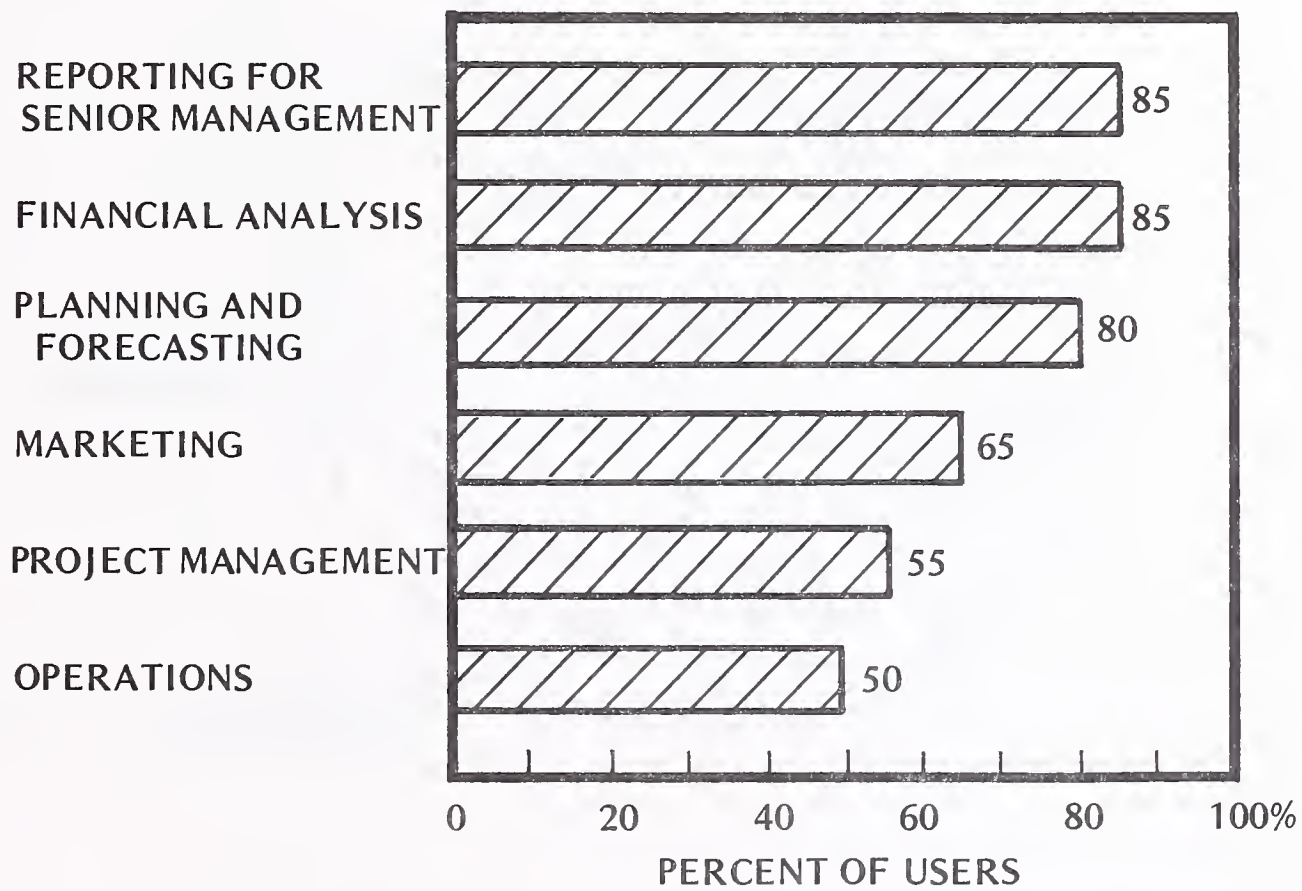
**INPUT**

## BUSINESS GRAPHICS RCS REVENUES



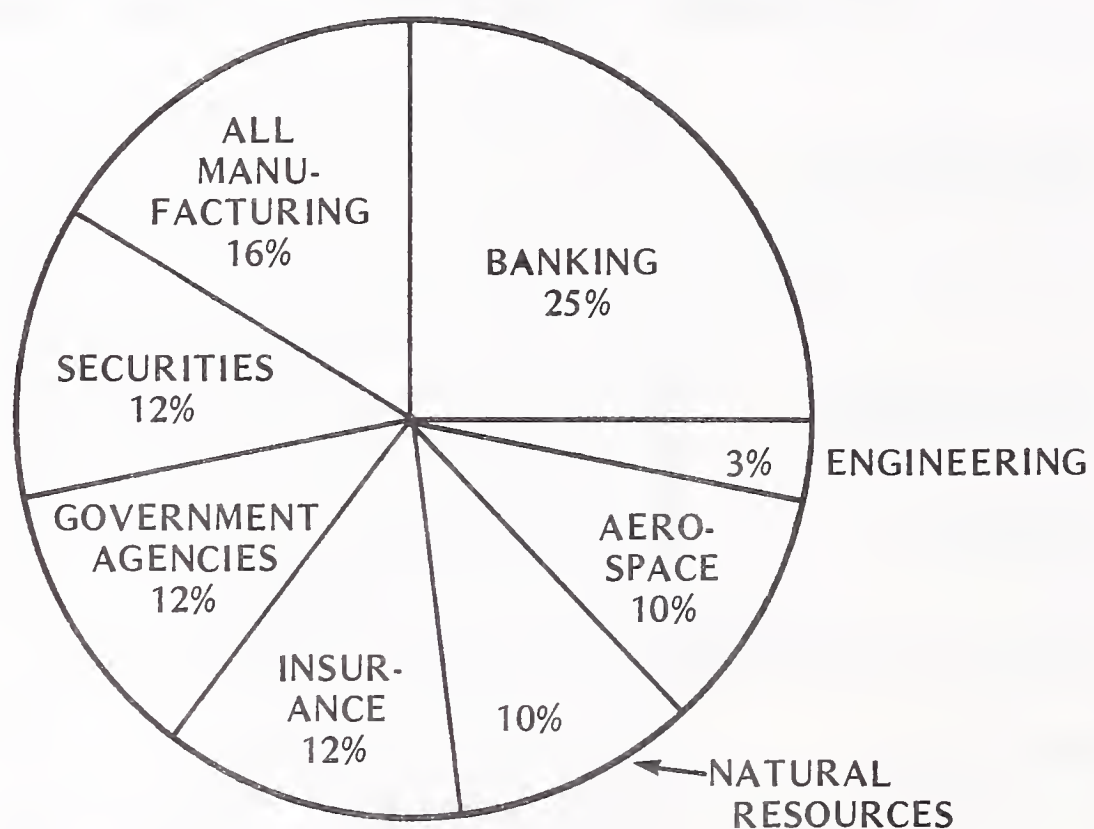
INPUT

## BUSINESS GRAPHICS APPLICATIONS



INPUT

## SOURCES OF BUSINESS GRAPHICS REVENUES

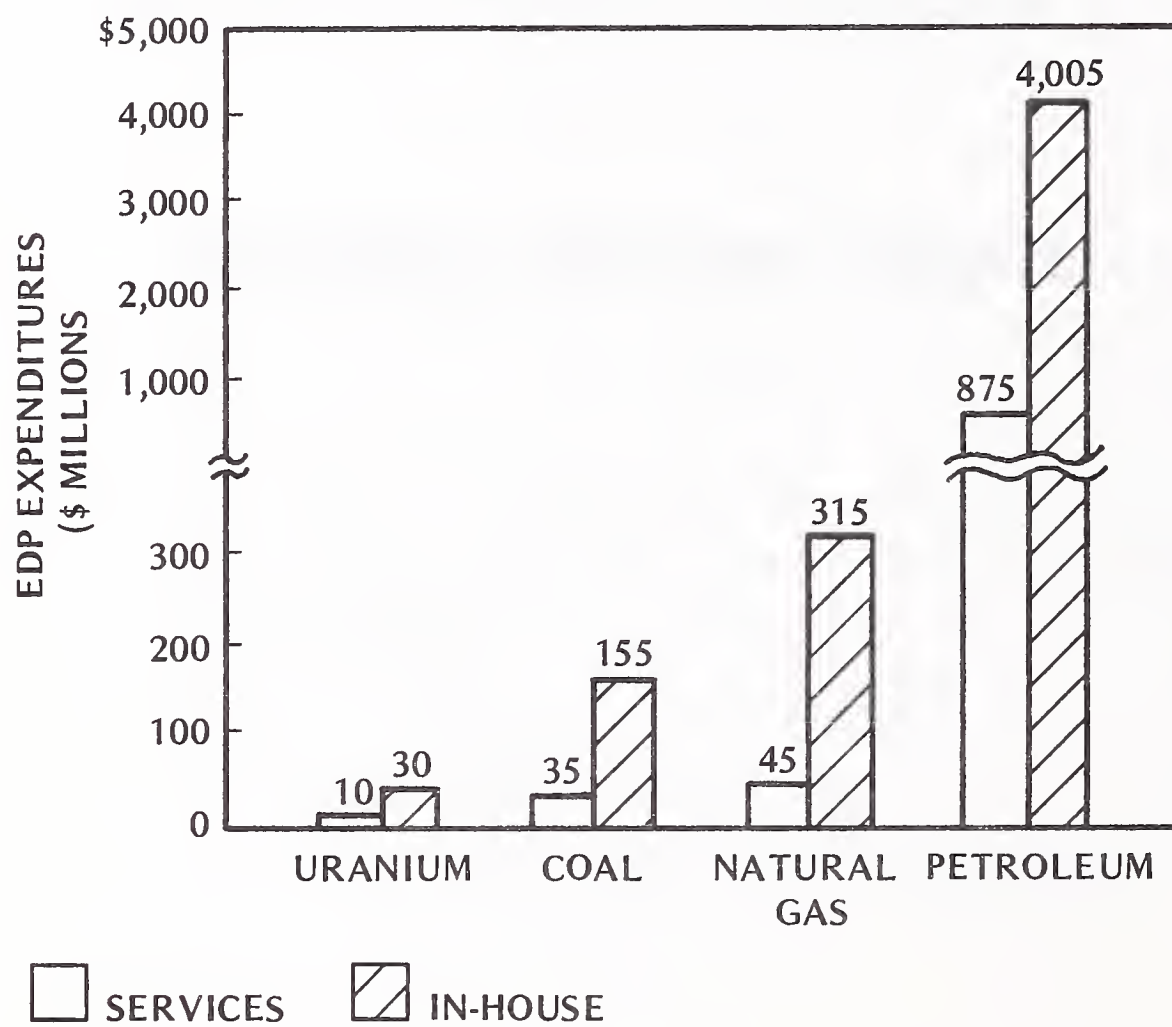


INPUT

## **ENERGY INDUSTRY MARKETS**

INPUT

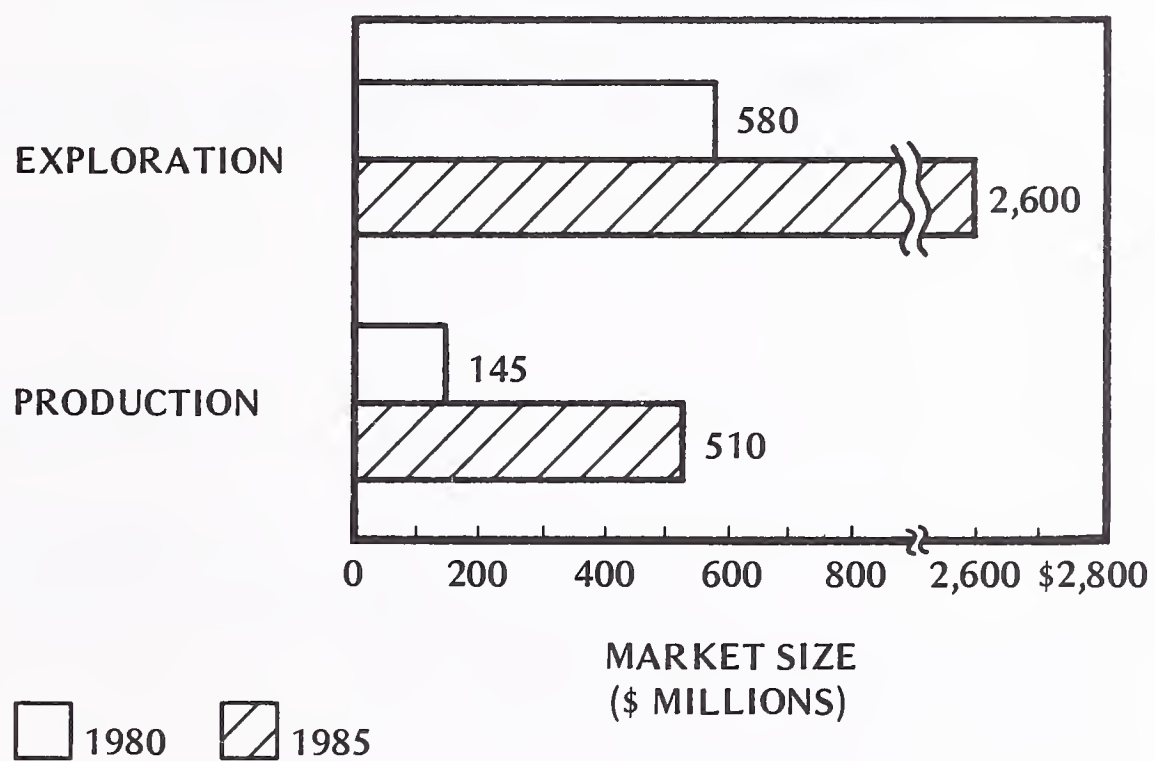
## EDP EXPENDITURES IN ENERGY INDUSTRY - 1980



INPUT



## INFORMATION SERVICES MARKETS IN ENERGY INDUSTRY



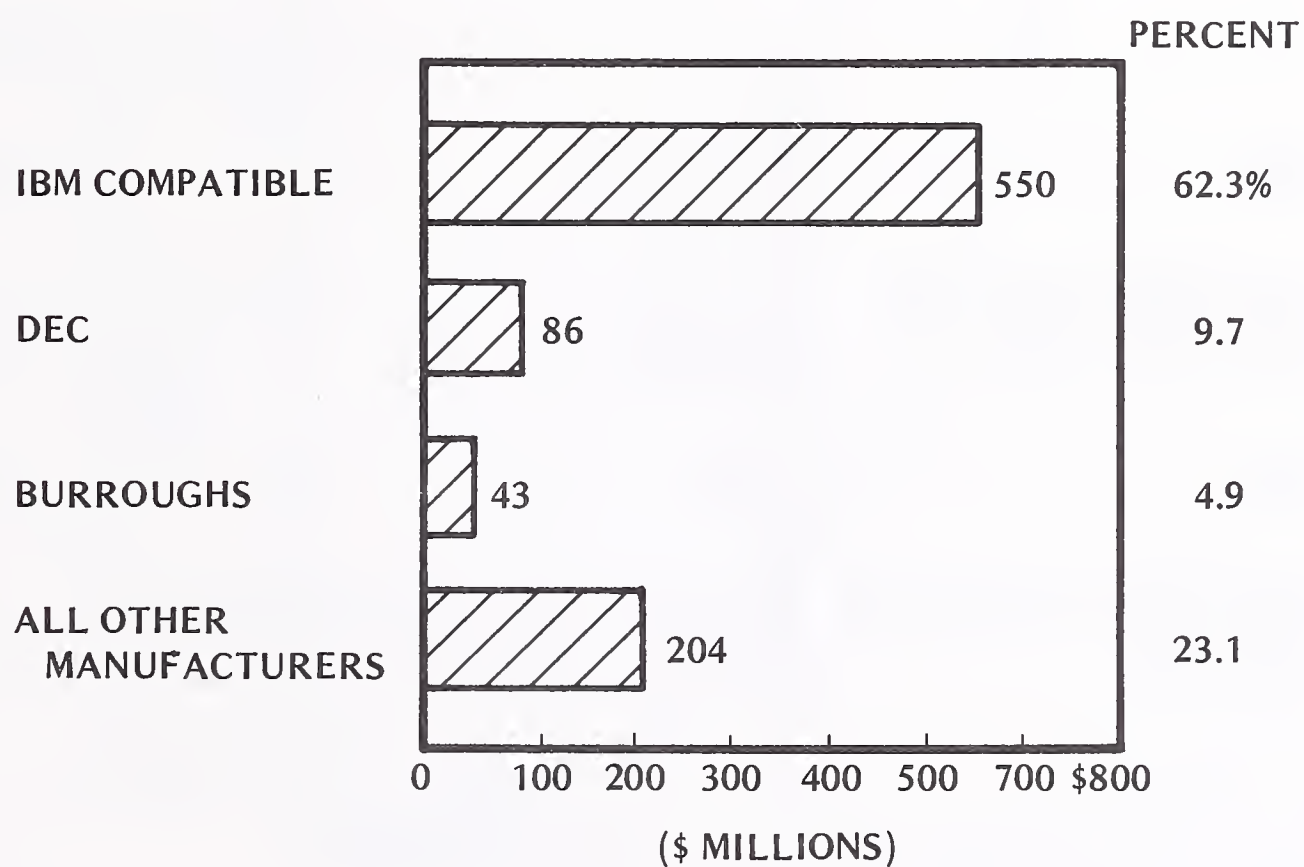
INPUT



# **APPLICATIONS SOFTWARE PRODUCT MARKETS**

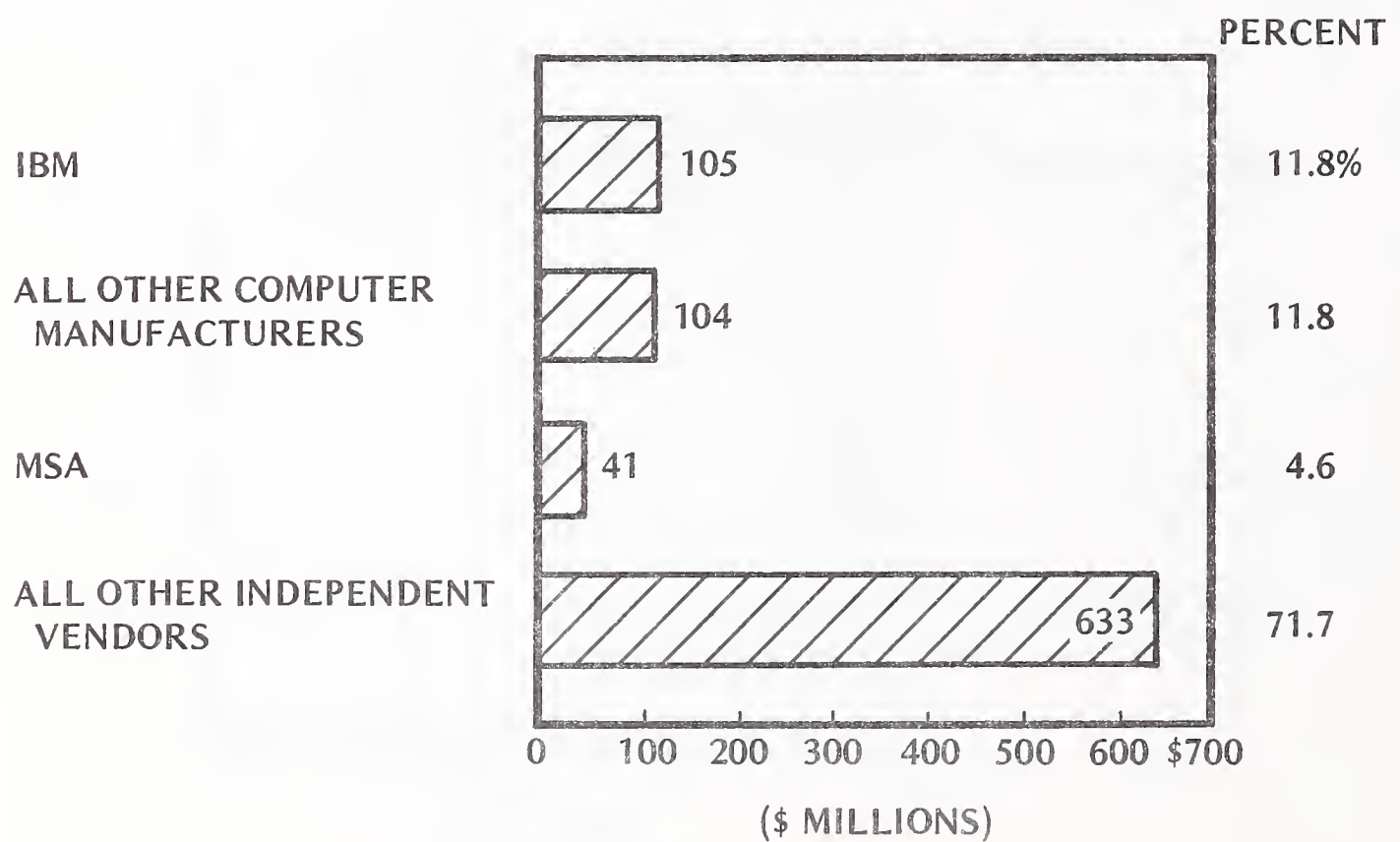
INPUT

# **1980 APPLICATIONS SOFTWARE PRODUCT MARKET - BY TYPE OF TARGET COMPUTER**



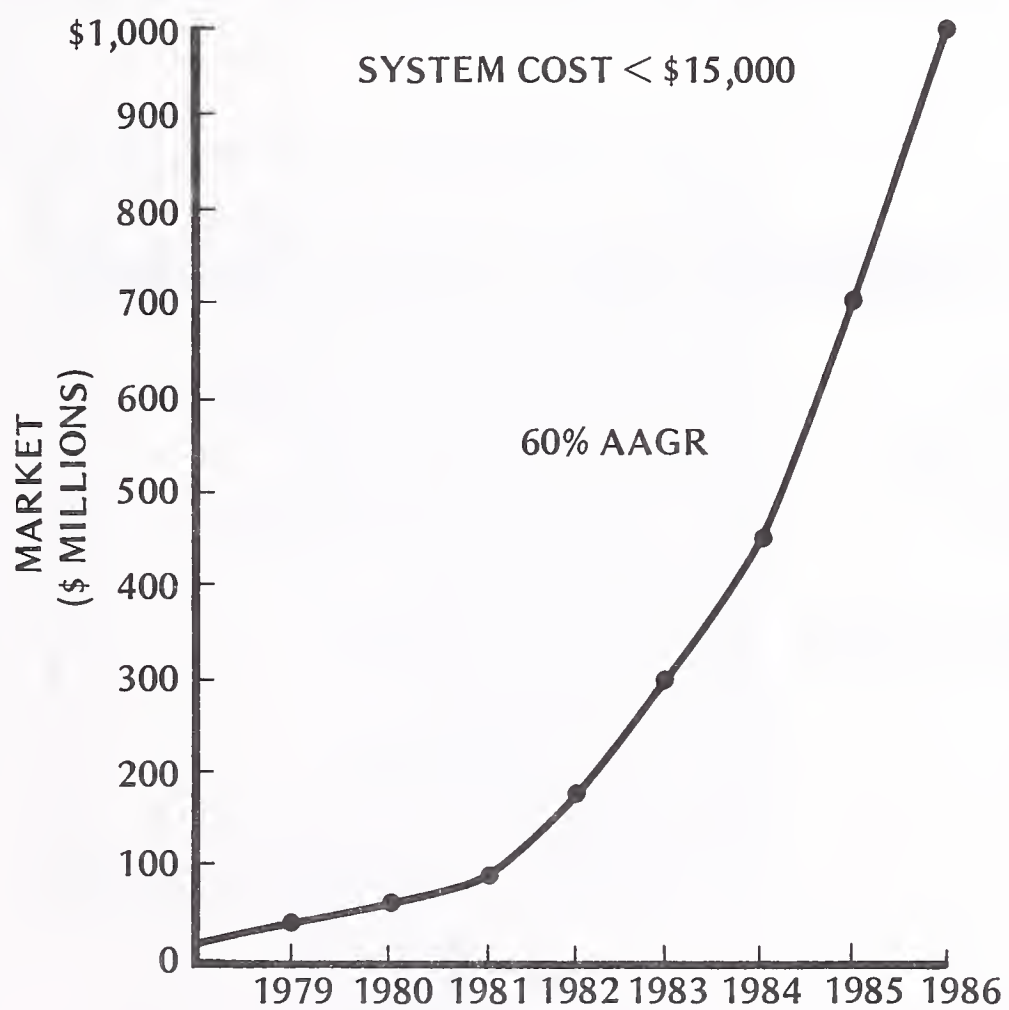
INPUT

# 1980 APPLICATIONS SOFTWARE PRODUCT MARKET - BY MAJOR VENDOR



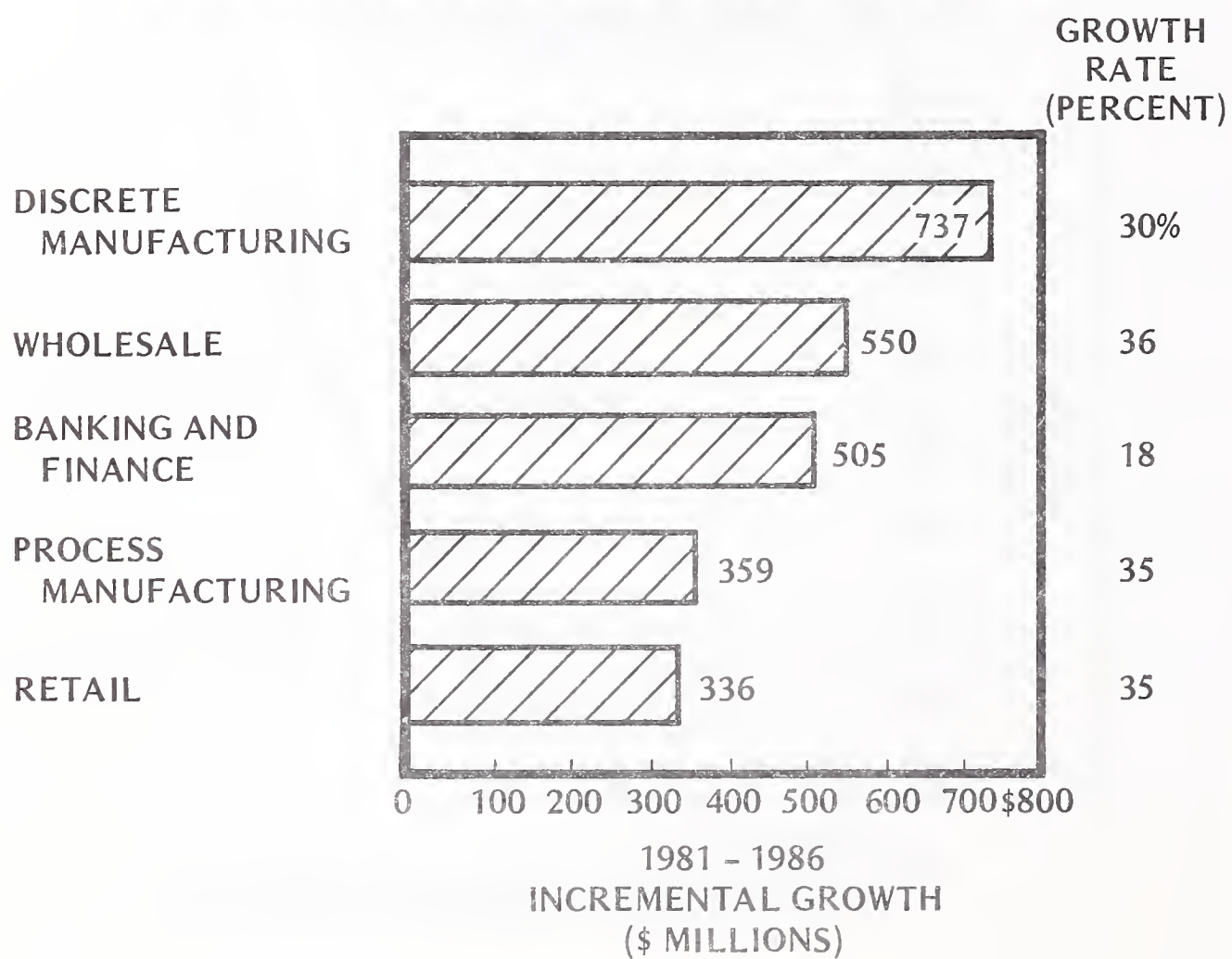
INPUT

## VERY SMALL COMPUTER APPLICATIONS PRODUCTS MARKET



INPUT

# APPLICATIONS SOFTWARE PRODUCTS MARKETS - GROWTH BY INDUSTRY SECTOR



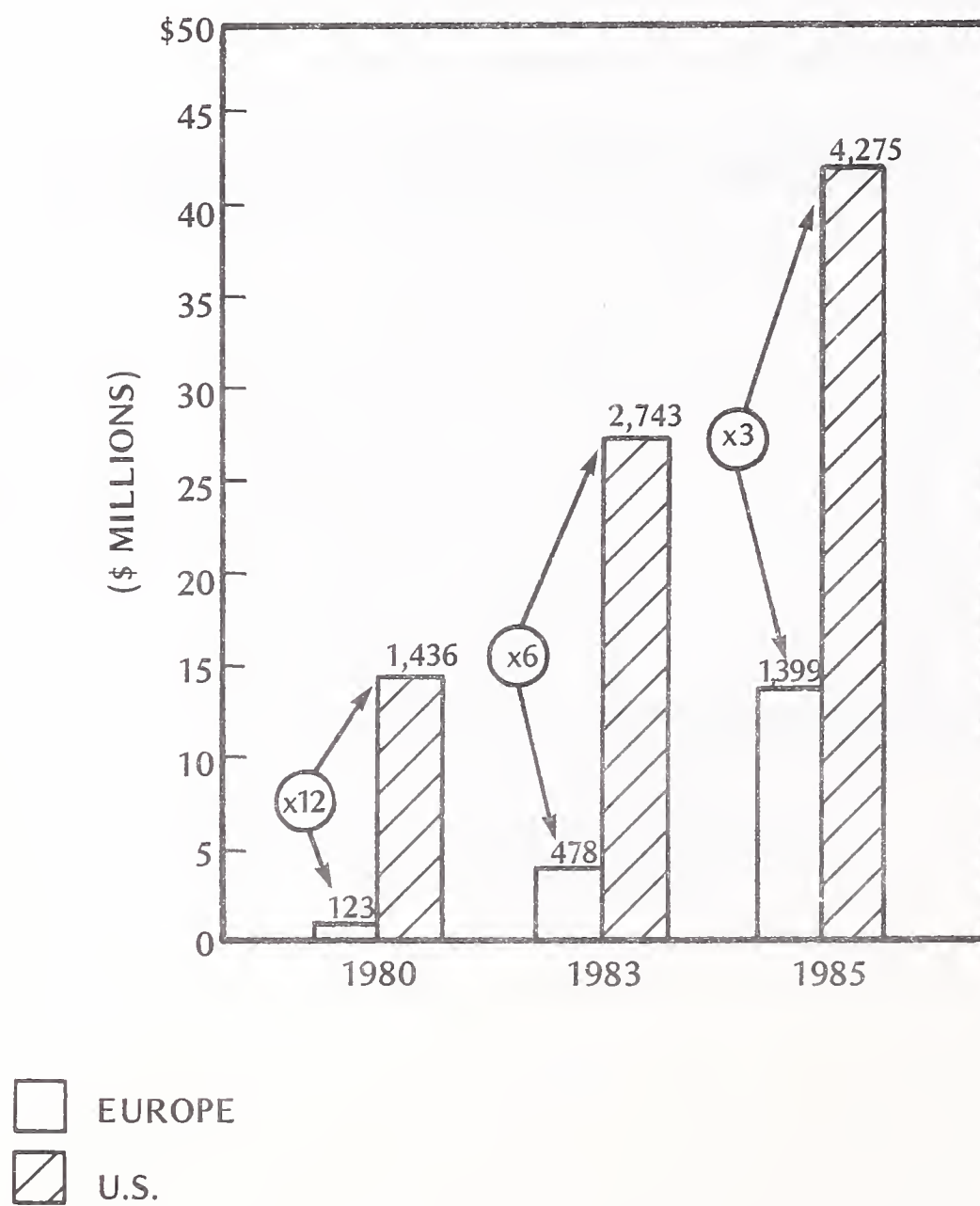
INPUT

## **ON-LINE DATA BASE MARKETS**

INPUT

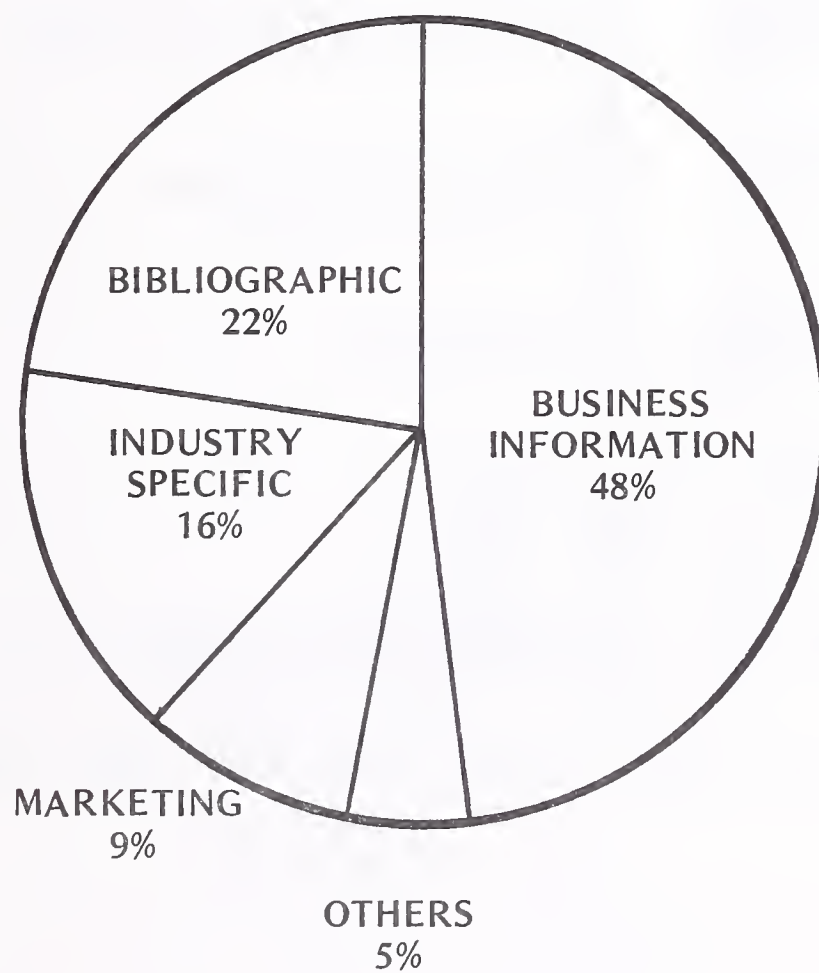


## ON-LINE DATA BASE MARKETS



INPUT

## ON-LINE DATA BASE MARKETS - EUROPE

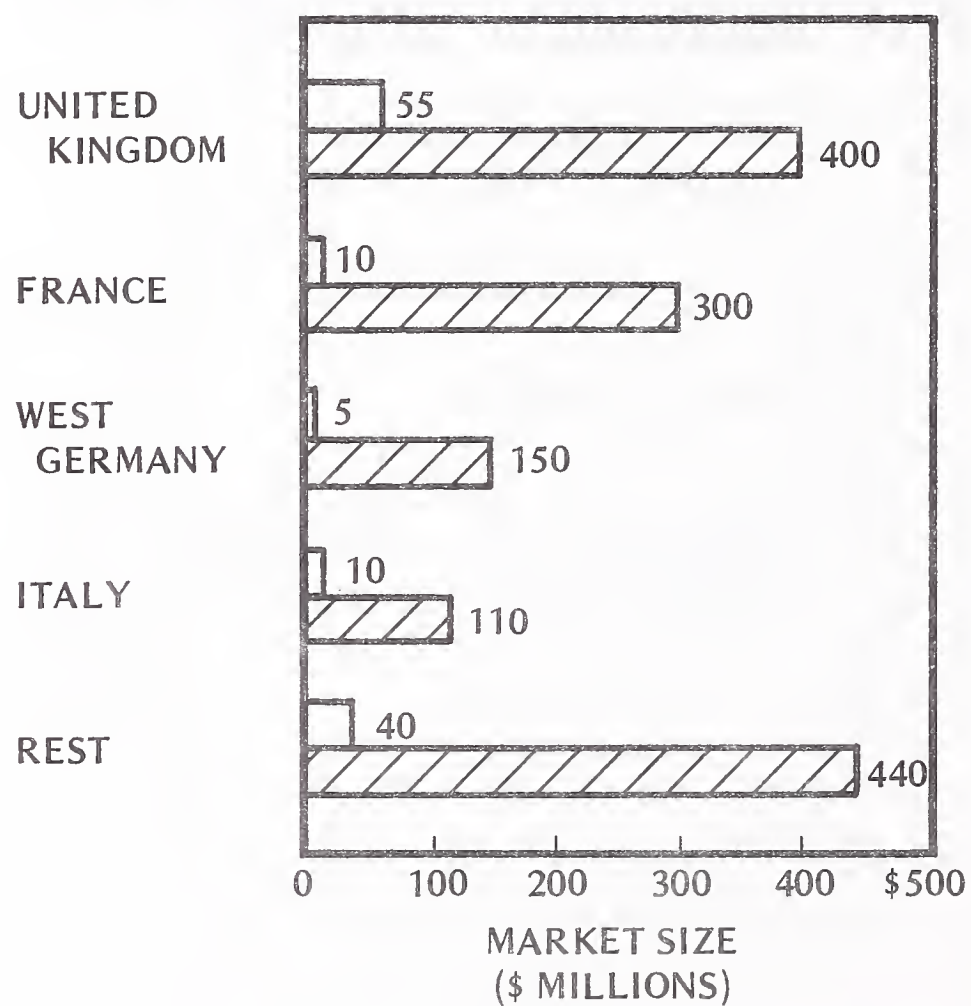


1985 \$1.4 BILLION

INPUT

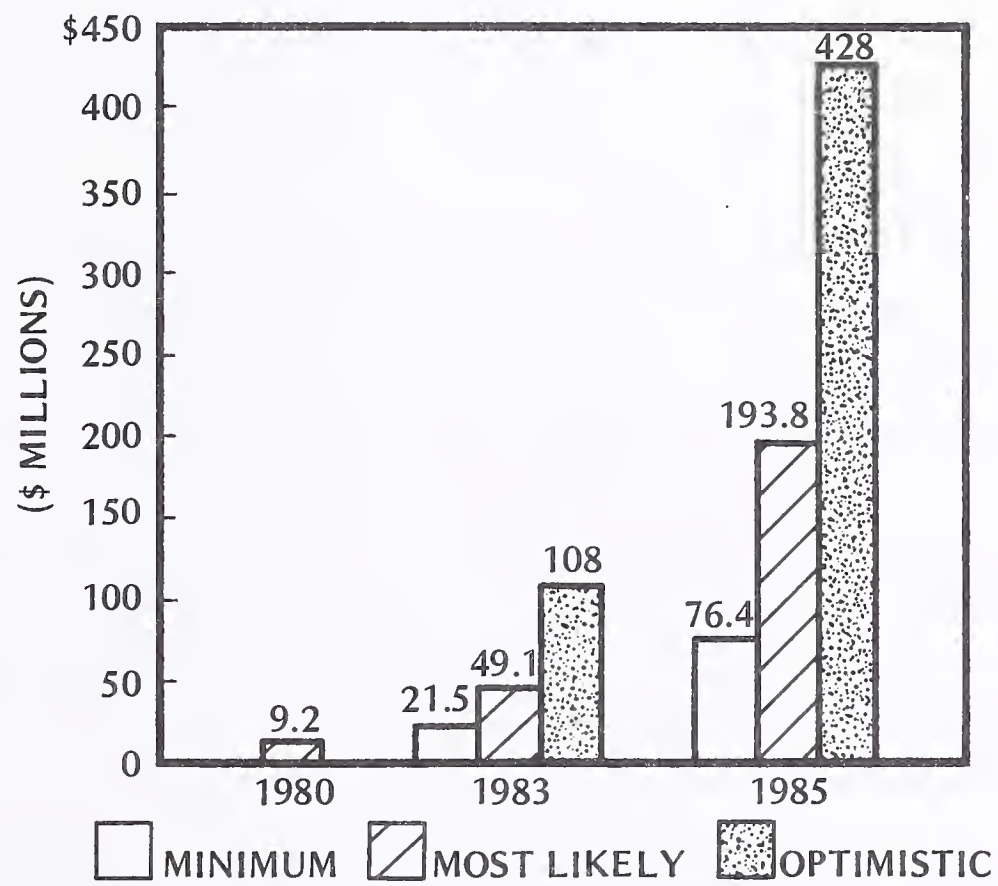


## ON-LINE DATA BASE MARKETS



INPUT

# VIDEOTEX MARKET FORECASTS - EUROPE



INPUT



## **VI. CONCLUSION**

- **INFORMATION SERVICES IN 1990**

— INPUT —



## ENVIRONMENT

- INCREASED AUTOMATION PRESSURES
  - HIGH ENERGY COSTS
  - HIGH INTEREST/INFLATION RATES
- ASSETS CHEAPER TO ACQUIRE BY MERGER/ACQUISITION
- CENTRALIZATION/DECENTRALIZATION CHANGE
- SOME WORK MOVEMENT TO “COTTAGE” INDUSTRY/HOME
- PERSONAL SYSTEMS WIDESPREAD

INPUT

## TECHNOLOGY

- WAVES OF CHEAPER AND MORE POWERFUL COMPUTERS
- INTERNAL COMPUTER SPEED 100 TIMES FASTER THAN 1981 BY 1990
- DISPERSED COMPUTER ARCHITECTURE
- "DISPOSABLE" OR "FREE" PROCESSORS
- STORAGE CHANGES MOST IMPORTANT

INPUT

## TECHNOLOGY

- MAJOR COMMUNICATIONS COST REDUCTIONS BY 1990
- COAX/CABLE IN MOST HOMES AND BUSINESS ESTABLISHMENTS
- AUDIO TO DIGITAL TECHNOLOGY IMPLEMENTED
- INFORMATION STORAGE AND PROCESSING CAPABILITY IN TELECOMMUNICATIONS NETWORKS
  - LIBRARIES
  - SHOPPING
  - MAGAZINES
- TELEPHONE/TELEVISION "FULL SERVICE" PRODUCTS

INPUT



## **SOFTWARE**

- "SOFTWARE ON A CHIP"
- APPLICATIONS PROGRAMMERS OBSOLETE
- SPECIALIST APPLICATIONS BUILDERS
  - LIBRARIES OF AVAILABLE SOFTWARE
  - GENERATORS
- SPECIALIST SYSTEMS ENGINEERS

INPUT

## OVERALL ISSUES

- PEOPLE AVAILABILITY
  - 300,000 PEOPLE NOW
  - 1,000,000 BY 1990(?)
- PEOPLE SKILLS
- COMPENSATION PACKAGES

INPUT

## **PROCESSING SERVICES ISSUES**

- LONG-TERM TRENDS - NEGATIVE
  - REPLACEMENT
  - CONVERSION OF CONTRACTS
- LONG-TERM TRENDS - POSITIVE
  - ADDITION OF PROFESSIONAL SERVICES
  - SOFTWARE DELIVERY VEHICLE
  - SOLUTION TO COMPLEX SITUATIONS
  - DEMAND FOR APPLICABLE INFORMATION
  - FRAGMENTATION OF BUYING POINTS

INPUT

## **PROCESSING SERVICES ISSUES**

- ACQUISITION
- INVOLVEMENT IN NEW AREAS
  - HARDWARE
  - SOFTWARE
  - COMMUNICATIONS
  - OFFICE
- ROLE IN EID (ELECTRONIC INFORMATION DISTRIBUTION)
- INDUSTRY/APPLICATION SPECIALIZATION

INPUT

## **PROCESSING SERVICES ISSUES**

- REPLACEMENT/HARDWARE FACTORS
  - DEALING WITH TREND TO IN-HOUSE
  - BUSINESS EXPOSURE TO PERSONAL SYSTEMS
  - EXPOSURE/ROLE VIS-A-VIS TURNKEY
  - TYPE OF USER SITE HARDWARE SERVICE
- PRICING/UNBUNDLING
- DISTRIBUTION

INPUT

## **PROCESSING SERVICES IN 1990**

- **PROCESSING SERVICES WILL BE PROVIDED BY**
  - **COMMUNICATIONS COMPANIES**
  - **BROADCAST COMPANIES**
  - **PUBLISHERS**
  - **COMPUTER MANUFACTURERS**
  - **BANKING/FINANCE COMPANIES**
  - **PROCESSING SERVICES COMPANIES**
  - **NON-INFORMATION INDUSTRY COMPANIES**

**INPUT**

## **PROCESSING SERVICES IN 1990**

- PROCESSING WILL BE "FREE"
- INCREASED SOFTWARE, CONSULTING AND DATA BASE COMPONENTS
- SERVICES WILL START TO OVERCOME IN-HOUSE PROCESSING
- PROVIDE PROCESSING SOLUTIONS

INPUT

## **SOFTWARE PRODUCTS ISSUES**

- ON-LINE, DISTRIBUTED PROCESSING PRODUCTS
- COMPUTER MAINFRAME TARGETS
- MANUFACTURER COMPETITION
  - UNBUNDLING
  - INTRODUCING PRODUCTS
  - DISTRIBUTION VEHICLE
- “PLUG-COMPATIBLE” SOFTWARE

INPUT



## **SOFTWARE PRODUCTS ISSUES**

- SOFTWARE SALES, DISTRIBUTION,  
INSTALLATION PROCESS
- SOFTWARE MARKETING
- SOFTWARE "MANUFACTURING"  
VERSUS "PUBLISHING"
- DEGREE OF CUSTOMIZING CAPABILITY
- SOFTWARE "ASSEMBLY" COMPETITION

INPUT

## **SOFTWARE PRODUCTS ISSUES**

- GROWTH PATH
- COMMUNICATIONS NETWORK INVOLVEMENT
  - REMOTE DIAGNOSTICS
  - DOWN-LINE LOADING
  - SOFTWARE OPPORTUNITY
- HARDWARE INVOLVEMENT
  - TURNKEY
  - SERVICE

INPUT

## **SOFTWARE PRODUCTS IN 1990**

- VENDORS WILL BE SOFTWARE MANUFACTURERS OR PUBLISHERS
- SYSTEMS SUPPLIERS WILL PROVIDE "SOFTWARE CHIPS" - POTENTIAL LOCKOUTS
- ENGINEERING CAPABILITY WILL BE VITAL
- MAJOR SYSTEMS SUPPLIERS WILL BE SOURCES OF REVENUES FOR INDEPENDENTS

— INPUT —

## **SOFTWARE PRODUCTS IN 1990**

- PRICE CATEGORIES WILL CHANGE
- INCREASED NEED FOR OTHER REVENUE SOURCES
  - CONSULTING
  - TRAINING/EDUCATION
  - SYSTEM MAINTENANCE
  - AUTOMATED DOCUMENTATION
  - SECURITY
  - SUPPLIES
  - NETWORKS
  - DATA BASES

INPUT

## **PROFESSIONAL SERVICES ISSUES**

- **PRODUCTIVITY**
  - INTERNAL
  - EXTERNAL
- **PEOPLE AVAILABILITY**
- **SPECIALIZATION**
- **SKILLS/LEARNING CURVE**

**INPUT**

## **PROFESSIONAL SERVICES ISSUES**

- PACKAGING
- LIBRARIES OF SOFTWARE ROUTINES
- REMOTE CONTRACTS

INPUT

## **PROFESSIONAL SERVICES IN 1990**

- INCREASED IMPORTANCE
- THREE TYPES OF SERVICE
  - ENGINEERING/COMPUTER ARCHITECTURE
  - APPLICATIONS SPECIALIZATION
  - MANAGEMENT
- ON-LINE SYSTEMS REDUCED DRIVER

— INPUT —

## **PROFESSIONAL SERVICES IN 1990**

- FACILITIES MANAGEMENT OPPORTUNITY
  - NOT “ON-SITE”
  - REMOTE HARDWARE
- INCREASED COMPETITION
  - SYSTEM SUPPLIERS
  - OTHER INFORMATION SERVICES COMPANIES
  - ACCOUNTANTS
  - EXTERNAL INDUSTRY SUPPLIERS

INPUT



## **CHANGE - STRUCTURAL**

- DATA → INFORMATION
- PAPER → ELECTRONIC MEDIA
- OFFICE OPERATIONS
- COMMUNICATIONS
- SYSTEMS FUNCTION??

INPUT

**CHANGE = OPPORTUNITY**  
**INFORMATION SERVICES ARE**  
**KEYS TO OTHER MARKETS.**

INPUT







